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STEEL

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For forty-eight years—IRON TRADE REVIEW

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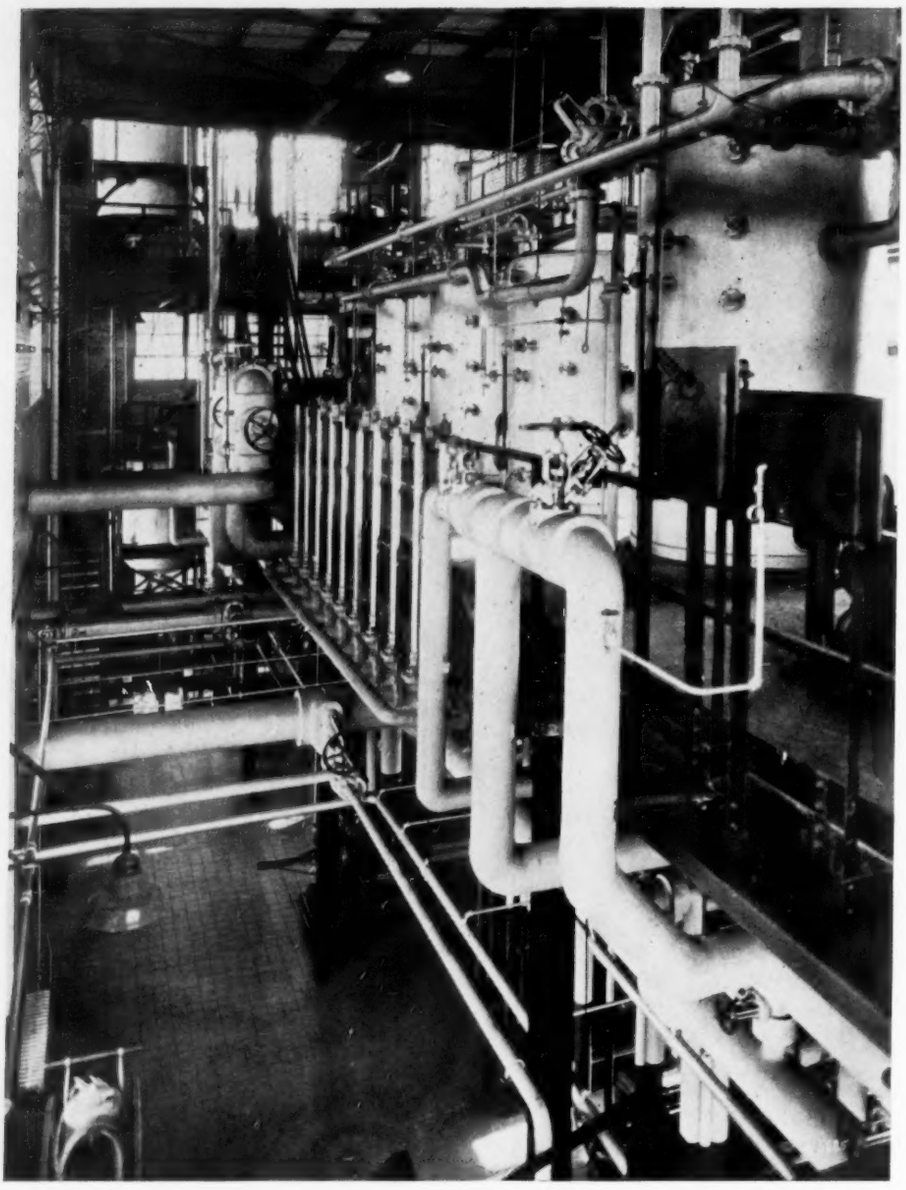

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What Would You Give—

What would you give—could you but live again those happy carefree days of youth? For most of us, it is a dim but treasured memory.

Occasionally we meet up with a man who seems to have a genius for keeping that carefree spirit—who can accept responsibility with little worry. A man on whom time has smiled.

We envy such a man for he has learned to live. But he has no patent on the process. We all, even those of us who buy, and impatiently wait—may learn to live.

There may be more important things, but a dependable, quick service source for steel will help.

A few of the Steel products carried in stock at the ten Ryerson plants. Immediate shipment is assured.

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90 years -of- RYERSON STEEL SERVICE

Volume 91 Number 20

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

AFTER the heat of the election, industry is groping for light. Barely having bounded off the bottom of the depression thus far and gathered a little strength for recovery, iron and steel is confronted with control of the government passing shortly to a party traditionally less sympathetic in such vital matters as the tariff and taxation (p. 11). Looking into the record, as one Democratic statesman would advise, the early days of the Wilson administration appear cheerless and by 1914 the industry was stagnant, but the war soon obscured all. Production in both the Cleveland administrations made a better showing than is popularly believed, but changing conditions vitiate this consolation.

Steel Will Carry On, Regardless

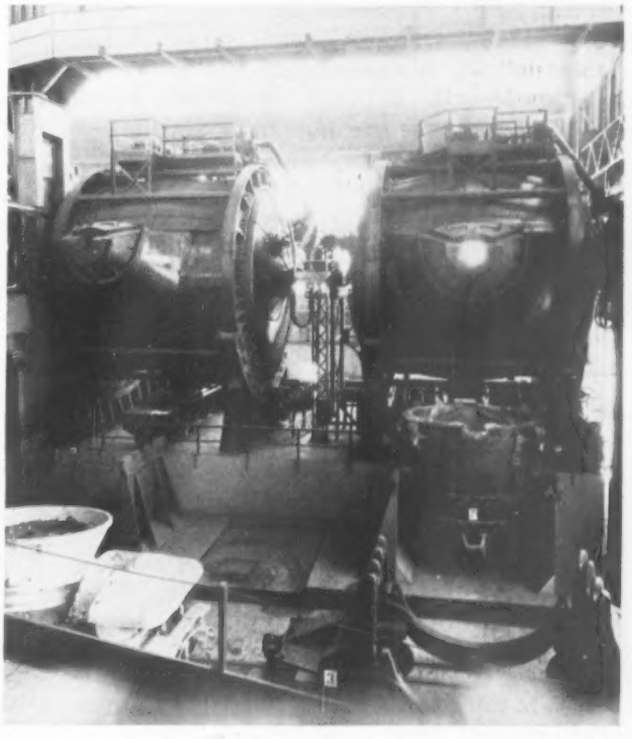
Until March 4, Hoover measures for reconstruction and minimizing the hurtful competition of foreign iron and steel will govern, and if the improvement in business the past sixty days is genuine it will, somehow, manifest itself. The sobering sense of conservatism which usually accompanies power may prove a saving grace at Washington, and ambition for further preferment may be counted upon to temper the new government. In any event, the instinct for self-preservation will impel the iron and steel industry to repress any disappointment and co-operate to make the best of the situation . . . . Typical of this constructive spirit is the appeal (p. 10) of an important steel executive for loyalty to the new administration.

Markets Not Responsive to Election

The first week following election reveals no distinct trend in iron and steel (p. 43). The markets continue numb and production holds at 21 per cent, but is laboring under the lack of railroad, structural and miscellaneous bookings, only automobile manufacturers being substantial buyers. . . . This 21 per cent operating rate, however, is a 2 point spread over the 19 per cent ingot average for October (p. 12) when the month's total exceeded a million tons for the first time since May. . . . Another harbinger is the third consecutive monthly increase (p. 58) in unfilled bookings of the Steel corporation. . . . Abroad, the balance of change in the market situation is on the side of improvement (p. 61). England finds the further drop in sterling helpful, and Continental competition softened . . . . One reflex of the election, first reported from St. Louis (p. 64), is a $60,000 order for brewery equipment. Stainless steel producers are looking forward to an expanding market for their material.

Plan 1934 Models Before 1933 Line Is Shown

As for several weeks, automobile manufacturers continue to be the largest single factor in the steel markets. Plymouth, Chevrolet, Buick and Olds are four makers in the Detroit



These hot-metal mixers handle molten iron enroute from blast furnaces to the open hearths at the Ford Motor Co., Detroit

area now taking or about to place requirements that are substantial in the aggregate (p. 15). This material is for assembling 1933 models, but already engineering work for 1934 is under way at some plants. Overhead rotary valve mechanism, automatic clutching and gear-shifting, and independently hung wheels are some objectives.

Wheelbarrow Becomes a Social Climber

A more plebeian mode of transportation—the wheelbarrow—claims higher rank with the introduction (p. 17) of balloon tires to facilitate wheeling through cinders or soft earth. . . . Still another type of transportation is the flexible woven wire conveyor belt, fabricated in a wide range of materials, including brass, copper and monel metal, and now including corrosion-resisting steel (p. 21). Especially for continuous heat treatment of small parts in quantities is this belt economical. Straight-rod reinforcement in the spirally wound wire of the belts increases load-carrying ability without a sacrifice of flexibility. . . . Transmission belting made endless by splicing instead of lacing has been developed (p. 37) by a rubber company.

Air, Unseen Foe of the Open Hearth

Most of the inefficiency and high fuel costs of old open-hearth steel furnaces being chargeable to the infiltration of air through the walls above the ground in both slag pockets, the remedy is proper insulation (p. 24). By tearing out only the outside red brick walls and salvaging the fire brick walls, buck stays, arches and other parts and adding some outside steel plate construction, this insulation can be applied. . . . Open-hearth furnace operators frequently desire to increase the capacity of their furnaces, and to accomplish this raise the usual bath or foreplate line by building dams on the sills (p. 28). An ample factor of safety is assured if this practice is considered in designing the girder structure.

Past, Present and Future in Technology

Ninety years' exposure to corrosive sulphur water has not impaired wrought iron tracks (p. 35)in a Pennsylvania anthracite mine. . . . Lubrication is essentially a chemical phenomenon, as a paper (p. 32) before the American Society of Mechanical Engineers next month will say. . . . Eulogized in poem and song, the anvil is also something to hearten the steelmaker, for its annual production accounts (p. 34) for 500 tons of material annually. . . . Recommended practice for safeguarding against embrittlement of hot-galvanized structural steel products and procedure for detecting embrittlement are highlights of an official report (p. 32) on this subject.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

We Must Stand Together

To the Editor:

The great national political controversy, which we must go through every four years, and which has raged so vigorously for the past three months, has come to an end.

A new Commander-in-Chief, eager to take up the growing burdens of this great office, has now been chosen. He has pledged the nation his best effort in the solution of our problems, and in working for the progress necessary to the happiness and development of a forward looking people.

It is therefore our duty as loyal Americans to get behind this new administration and give every sound and constructive measure it proposes, in the solution of our many complex problems, our full support.

Only by so doing can we serve our own best interests, as we must remember that we are still in the midst of a great economic upheaval, which can only be righted by the co-ordinated effort of our government and our people.

To withhold our support and co-operation through bitterness, resentment, disappointment, or otherwise, would only result in creating greater uncertainty and in unnecessarily prolonging the period of recuperation which has already been as costly as our people and our institutions can stand, without a serious weakening of our whole financial, industrial and commercial structure.

The will of a free people must in the end be served by their administrators and the work and service of any particular group is of short duration. Only by concerted and co-operative effort can that will be so strongly visualized that the administrators of government, whoever they may be, are certain to understand it.

There certainly never was a time when the convictions of so large a number of our people were so pronounced. These tragic times have made us all think as never before, but no matter what our convictions or which side we supported right up to the voting booth, the verdict of a majority is recorded, and there can be no stable government unless that majority is recognized and supported by every loyal citizen.

As representative of all political parties and of all the faiths that abound among our people, let us now stand shoulder to shoulder in a gigantic and irresistible effort in the support of government and business and of all our established institutions, in the complete rehabilitation and reinvigoration of the greatest of all free nations, to the end that unemployment may disappear and happiness and prosperity may return to the American home.

GEORGE M. VERITY
Chairman, American Rolling Mill Co.

Middletown, O.,
Nov. 9, 1932.

Competition from Purchased Bankrupts

To the Editor:

Do manufacturers realize the menace that lurks in current bankruptcy procedure, or rather in its abuses? A company gets into financial difficulty, struggles along for a time and finally goes bankrupt. Eventually somebody buys it for a few cents on the dollar and shortly starts out after business. Without the usual overhead, the new management is able to quote ruinous prices, thereby destroying business for competitors who have remained solvent. Can't something be done about this injustice?

A VICTIM

Ohio.

Government, Old and New, To Be Solicitous of Business

WASHINGTON — In the 15 weeks remaining to it, the Hoover administration will carry on with its various measures for reconstruction and attempt to accelerate the improvement in business so that the record will accord it proper credit for inaugurating and expediting the recovery.

The Roosevelt administration, sobered by its responsibility and cognizant that the measure of its success and popularity will be largely the rapidity with which business returns to normal, will be extraordinarily vigilant to give no cause for alarm and will temper its administrative and legislative policies accordingly.

This is the Washington viewpoint, a week following the election. There is widespread confidence that so paramount is the recovery of business that the transition from a Republican to a Democratic regime will be effected with a minimum of hardship and disturbance. Now that the campaign is over, the public utterances of President-elect Roosevelt disclose no serious divergence from Hoover business policies, even including the tariff.

An unequivocal statement by the new President makes the matter of the appointment of his cabinet 60 days distant, or at least until early January. There is, however, a profound conviction that there will be close co-operation between the outgoing and incoming administrations in regard to reconstruction policies and it would not be surprising if a statement is forthcoming shortly from the new administration which will have a stabilizing effect upon industry and business.

No Radical Moves Seen

It is pointed out by those in Washington, having the closest contact with Roosevelt group, that there will be no experimentation, either legislatively or administratively, until after the depression has entirely disappeared, if then. It is believed that the closest advisors to the new President will be such men as Owen D. Young, Bernard M. Baruch and others identified with big business.

When President Wilson was inaugurated in March, 1913, he immediately called a special session of congress which revised the tariff and passed the Underwood-Simmons act, which was signed in October of that year. Thus, seven months after the Democrats took hold, a new tariff went into effect and it is recalled that production of iron and steel declined sharply in 1914. Output of steel ingots and castings declined from 31,300,874 tons in 1913 to 23,513,030 tons in 1914. Production of pig iron dropped from 30,966,152 tons in 1913 to 23,332,244 tons in 1914. What would have followed remains conjecture because at that time the World war broke.

Recalling that an adjustment of the tariff precipitated the first criticism of the Hoover administration, it is said that the new President will be cautious in tariff matters. In one of his addresses Governor Roosevelt came out in favor of a competitive tariff "which means one which will put American producers on a market equality with their foreign competitors, one that equalizes the difference in cost of production, not a prohibitory tariff back of which domestic producers may combine to practice extortion of the American public. * * * I appreciate that this doctrine is not widely different from that preached by Republican statesmen and politicians."

Revive Conference Plan?

Accordingly, the feeling in Washington at this time is that even if the tariff is taken up the proposal President Hoover vetoed at the last session of congress, that an international tariff conference be arranged and that reports of the bi-partisan tariff commission be submitted to congress for action and not the President, will be the extent.

Normally, the new congress elected Nov. 8 would not assemble until Dec. 4, 1933. It would be extraordinary if the new President did not call a special session shortly after his inauguration, and yet there is good political advice against such action, provided the congress which convenes Dec. 5 takes steps to adjust the liquor situation. It is assumed here that the election supplied the Democrats with a mandate to modify prohibition; if the congress convening next month accomplishes this the occasion for calling a special session next spring would be modified.

Has Approved R. F. C.

Regarding the Reconstruction Finance Corp., Governor Roosevelt is on record as approving the creation of that body and for maintaining it as an emergency measure. Amendments might be proposed to broaden its application to agriculture, but this may be taken care of in the forthcoming session. Several members of the Corporation are recess appointees, including the president—Atlee Pomerene, of Cleveland—who is a Democrat.

The present surcharges on freight rates expire March 31, 1933. The President-elect during his campaign took a stand favorable to the railroads. In one address he declared:

"I advocate that the government announce its intention to stand back of the railroads for a specified period; its help being definitely conditioned upon acceptance by the railroads of such requirements as may in individual cases be found necessay to readjust top heavy financial structures through appropriate scal-

EARLY ACCOMPLISHMENTS OF THE 5-YEAR PLAN are these two 750-ton blast furnaces now in operation at the Kuznetsk metallurgical works, Kuznetsk, Siberia. Eventually there will be two more furnaces. These furnaces, with the remainder of the complete steelworks, were designed and built by the Freyn Engineering Co., Chicago

ing down of excessive fixed charges.

"I propose the preliminary development of a national transportation policy with the aid of legislative and administrative officials and representatives of all interests most deeply concerned with the welfare and service of the railroads, including investors, labor, shippers and passengers.

"I propose that in the application of this policy to the railroads the Reconstruction Finance Corp., working with the interstate commerce commission, share the work of planning the reorganization or readjustment for the protection of public investments and those of innocent security holders."

Ponder Fate of Commerce Dept.

There is also considerable speculation among business interests as to what will become of the department of commerce under the new administration, especially as it was over that department that Mr. Hoover presided before he want to the White House. The consensus of opinion, among those in a position to know here, is that no radical changes will be made.

It is not believed that the commodity divisions of the department will be materially changed, although it is possible in some instances that the personnel might be. The idea of commodity divisions has been sold to the country and it is not likely that Mr. Roosevelt will want to change that.

Because Governor Roosevelt is only the third Democratic president to take office in 72 years, there is some searching of past experiences with Democratic administrations. Grover Cleveland, it will be recalled, covered the period March 4, 1885, to March 4, 1889. At that time pig iron was the chief barometer of the industry and its production during the first Cleveland administration developed a steady gain:

	Gross tons
1885	4,044,526
1886	5,683,329
1887	6,417,148
1888	6,489,738
1889	7,603,642

Following a lapse of four years, Grover Cleveland again assumed the presidency on March 4, 1893, and the record of pig iron production during his second term is as follows:

	Gross tons
1893	7,124,502
1894	6,657,388
1895	9,446,308
1896	8,623,127
1897	9,652,680

As previously quoted, output of both pig iron and steel ingots, the latter then the better barometer, declined sharply in the first full year of the Wilson administration in 1914. But the advent of the war imposed such abnormal demands upon the industry that the further course of production is of no value as a background.

Steel Ingot Production — 1931-32

95.33 Per Cent of Industry Reporting
Gross Tons

1931	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	2,098,175	296,620	2,394,795	2,512,140	27	93,042	43.80
Feb.	2,131,079	296,974	2,428,053	2,547,027	24	106,126	49.96
Mar.	2,565,531	346,137	2,911,688	3,054,339	26	117,475	55.30
Apr.	2,321,043	316,668	2,637,711	2,766,959	26	106,421	50.09
May	2,130,805	301,639	2,432,444	2,551,633	26	98,140	46.20
June	1,782,007	246,365	2,028,372	2,127,762	26	81,837	38.52
July	1,574,379	225,030	1,799,409	1,887,580	26	72,599	34.17
Aug.	1,462,254	174,380	1,636,634	1,716,829	26	66,032	31.08
Sept.	1,274,072	199,151	1,473,223	1,545,411	26	59,439	27.98
Oct.	1,319,958	195,943	1,515,901	1,590,180	27	58,896	27.72
10 mos.	18,659,303	2,598,907	21,258,210	22,299,860	260	85,769	40.37
Nov.	1,276,856	240,441	1,517,297	1,591,644	25	63,666	29.97
Dec.	1,068,384	172,046	1,240,430	1,301,211	26	50,047	23.56
Total	21,004,543	3,011,394	24,015,937	25,192,715	311	81,006	38.13
1932							
Jan.	1,230,661	160,633	1,391,294	1,459,450	26	56,133	25.96
Feb.	1,232,568	157,067	1,389,635	1,457,710	25	58,308	26.96
Mar.	1,149,307	193,944	1,343,251	1,409,054	27	52,187	24.13
Apr.	1,036,227	144,197	1,180,424	1,238,250	26	47,625	22.02
May	950,785	103,593	1,054,378	1,106,030	26	42,540	19.67
June	755,123	100,249	855,372	897,275	26	34,511	15.96
July	652,650	102,872	755,522	792,533	25	31,701	14.66
Aug.	696,206	97,323	793,529	832,402	27	30,830	14.26
Sept.	804,556	124,970	929,526	975,061	26	37,502	17.34
Oct.	885,773	132,876	1,018,649	1,068,550	26	41,098	19.00
10 mos.	9,393,856	1,317,724	10,711,580	11,236,315	260	43,217	19.98

Figures exclude crucible and electric ingots. Operating percentages for 1931 on capacity of 66,069,570 gross tons as of Dec. 31, 1930; for 1932 on 67,473,630 tons as of Dec. 31, 1931.

Daily Ingot Rate Tops 40,000 Tons

OPEN-HEARTH and bessemer steel ingot production crossed 1,000,000 tons in October, after dipping under this level for four consecutive months. Daily average output also crossed 40 000 tons after being under this level for the same four months.

The October daily rate of 41,098 gross tons engaged capacity at 19 per cent, compared with 37,502 tons and 17.34 per cent in September. October was the second consecutive month to record improvement.

Calculated output of all companies was 1,068,550 tons in October, compared with 975,061 in September. This was an improvement of almost 300,000 tons over the July low of 792,533 tons.

A comparison for the first ten months of 1932, however, discloses a total less than barely one-half that of the comparable period of 1931. The 1932 total for this period was 11,236,315 tons, and the 1931 total, 22,299,860 tons.

Thus far in 1932, production has been at the average rate of 19.98 per cent of capacity; a year ago it was 40.37 per cent.

These statistics by the American Iron and Steel institute, New York, include only open-hearth and bessemer steel.

Reorganized Wrought Iron Co. Continues in Business

Wrought Iron Co. of America, Lebanon, Pa., until recently in receivership, has been reorganized as the Wrought Iron Co. C. O. Bressler is president, David Hammond vice president, and J. J. McDermott secretary and treasurer. Directors are Mr. Bressler, Dr. C. A. Ernst, Philadelphia, and C. P. Lineaweaver, Philadelphia, the latter vice president of the Pennsylvania Co. for Insurance on Lives and Granting Annuities.

The head of the new company is also president of the C. O. Bressler Sheet Metal Works and vice president of the Lebanon County Trust Co., both of Lebanon.

The company will continue to manufacture a wide range of products, including bolts, nuts, rivets, spikes, channels, angles, refined bars, and special sections.

Unveils Bridge Plaques

Waldo-Hancock bridge, spanning the Penobscot river at Bucksport, Me., was decorated Nov. 10 with two stainless steel plaques by the American Institute of Steel Construction, New York, denoting it as the most

beautiful bridge of medium size erected during the past year. The award was made by Charles N. Fitts, of the New England Structural Co., Boston, who when president of the institute initiated the practice of making awards for meritorious bridge designs. The stainless steel plaques, replacing the bronze ones formerly used, were donated by the General Alloys Co., Boston.

Taylor Visits Oldest Steel Corp. Stockholder, Now Ill

Myron C. Taylor, chairman of the United States Steel Corp., recently paid a personal visit to the Corporation's oldest stockholder, Charles H. Munford, 93 who is confined in a Newark, N. J., hospital for a hip injury which is considered critical.

Since the accident, Mr. Taylor has inquired daily concerning the condition of Mr. Munford, has sent flowers and now has made a personal call.

A veteran of the Civil war and one-time lecture tour manager for Henry Ward Beecher, Mr. Munford has been a regular attendant at the annual stockholders meetings at Hoboken for many years and his impromptu speeches, including a successful plea to the late Judge Gary to have pumpkin pie always on the luncheon menu, have been a feature.

Books Wire Strand

Broderick & Bascom Rope Co., St. Louis, has booked 210,000 feet, ⅜-inch wire strand for the army engineer at Kansas City, Mo., at $2377.20, delivered; bids of Oct. 10.

R. F. C. Bans Foreign Material; Tariff Report Made on Steel

MATERIALS, supplies and such machinery as is used in self-liquidating projects financed by the Reconstruction Finance Corp., Washington, must be of domestic origin so far as possible, is a new policy of the Corporation. In event there is doubt concerning a sufficient supply of domestic material or equipment, a decision by the Corporation will be conclusive.

Preference also is to be granted to ex-service men with dependents in the employment of labor on self-liquidating projects, and their wages shall not be lower than those prevailing in the same vicinity for similar work, it has been ordered.

□ □ □

Reconstruction Finance Corp. has approved self-liquidating loans for $134,633,000 since its formation. Applications now pending cover 64 projects costing $135,796,653. Thirty-five of these applications are for construction of water systems, 11 for bridges, five each for irrigation systems and power plants, three for sewer projects, two each for terminals and docks. There are three housing projects calling for $5,695,000.

The Corporation has won its fight in the supreme court of the District of Columbia in connection with its $40,000,000 loan to the Metropolitan Water District of Southern California, estimated to take over 150,000 tons of steel. The court has found that the project is self-liquidating.

The Corporation has decided to purchase $1,125,000 worth of bonds of the Twin Lakes Reservoir & Canal Co., of Colorado, for a water canal and tunnel, and $45,000 bonds of Sanford, N. C., for a water filtration works. Steel will be required for both projects but there is no estimate.

Pending applications requiring substantial amounts of steel include:

St. Louis-Kansas City Short Line Railroad Co. for $35,000,000 for resumption of double-tracking between St. Louis and Kansas City, Mo., for which 91,360 tons of 120-pound rails, 4650 tons of angle bars, 2,635,000 tie plates, 7200 tons of structurals, 960 tons of reinforcing bars and 27,550 linear feet of cast iron pipe will be required.

Vicksburg Bridge & Tennessee Co. for $4,000,000 for replacing a timber trestle with a steel one.

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A preliminary report on possible changes in the iron and steel schedule of the present tariff has been made to the tariff commission by the iron and steel division. This report was made, it is stated, as the result of the letter which President Hoover wrote to the commission several weeks ago in which he asked for suggestions for possible changes in a number of different commodities including the iron and steel schedule. The commission has not made any official statement in connection with its activities with regard to the President's request.

It is stated that contained in the preliminary reports are tables showing imports into the United States from countries with depreciated currencies and comparative tables showing imports from countries whose currency has not depreciated. Imports are shown only for commodities where the imports are competitive with those manufactured in the United States. The report is to the effect that the tables show increasing imports. Officials of the commission, however, have refused to discuss this work for publication at this time.

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No further orders affecting imports of iron or steel have been issued by the bureau of the customs, although

(*Please turn to Page* 58)

CHICAGO FIRE CONSUMED THIS BUILDING BUT THE BUSINESS LIVES ON: From 1853 *until the great fire of* 1871 *this 2-story brick structure along the river front in Chicago was the headquarters of what is now Joseph T. Ryerson & Son, widely-known warehouse and machinery interest which is celebrating its 90th anniversary in November*

Foreign Iron Bought in Self Defense; New England Notes

BOSTON

IMPORTED pig iron continues to retard the volume not only of the Everett furnace but also of other domestic producers selling in New England. In view of the low prices at which this foreign iron is offered and also considering depreciated currencies the volume of sales by domestic furnaces is surprisingly good, however. Some New England melters are reluctant to buy foreign iron, but faced with the keenest of competition, they are virtually forced to in some cases.

Foundry melt in some Southern New England plants has increased due to demand for parts for oil burners. Several are operating overtime, especially one in Connecticut, but how long this oil burner demand will hold is a matter of conjecture. The demand has been heavy and rush orders for small castings have been almost entirely for early delivery.

◆

Improvement in any one of several industries is generally reflected in the basic industry of steel. Even those industries not immediately connected with the consumption of steel often contribute moderately to the demand. The shoe and textile industries in New England have had a promising spurt, although in the former a let-down is now noted.

With the shoe industry active there is a better demand for cold-rolled strip for shoe shanks. Some sellers of strip have made efforts to switch shoe makers from cold-rolled to hot-rolled strip, pointing to the lower cost, but have made little headway. In addition, there has been a better demand for small nails, tacks, dies and miscellaneous metal for the shoe factories.

In textiles, the wire industry has benefited frim the better demand, as in the aggregate a moderate increase has been noted for wire specialties.

◆

New England structural steel fabricators are irritated over the way the government building program is going in this territory. Most of them are not bidding on the structural material ordered. Some who took small postoffice jobs still are waiting for their money. Few local general contractors are taking this work, being undersold by outside builders, little known and of little experience.

These small postoffice jobs are being "farmed out," and material men are subjected to continual "chiseling" methods of these buyers. Work is often laid out in a haphazard way, resulting in difficulty in getting steel through the mill and shops expeditiously. A surprisingly large number of the projects are being finished by bonding companies, resulting in delays, haggling and generally unsatisfactory situations.

There are a few exceptions, but as a rule the program is working out badly for the New England structural shops, which are no longer interested in bidding for much of the tonnage.

◆

There is a tendency to make machinery designed for automatic operation, and even equipment for household use, tinker proof. This is well illustrated by the new oil burner of the General Electric Co., being assembled at Pittsfield, Mass. This is designed for automatic operation, and the householder cannot get into the works with a hammer or wrench for blind repairs or adjustments. He can only look into the firebox through a small slit or opening. If anything goes wrong, the difficulty becomes a matter of service from the service station, the plan being the same as electric refrigeration service.

There has been a substantial demand for blue annealed sheets for 275-gallon tanks for oil burners, with a tendency in some quarters to use heavier material in these tanks. No. 14 gage and even lighter is used by some burner tank builders, but one large producer is tending toward No. 12. These tanks are painted on the outside, and, being above ground, are readily accessible and a leak easily noted, such leaks being generally caused by acid action on the inside of the tank. Low price is a dominant factor in the construction of some of these tanks and they are of the cheapest construction possible to render passable service.

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Gradual improvement in wire mill orders since May has, at times, been hardly noticeable, but has been evenly spread through most departments. Tonnage orders in some instances compare favorably with those of a year ago. South Works, American Steel & Wire Co., Worcester, has three of its four open-hearth furnaces operating, with gains in activity in the bloom and rod mills. In some district mills there has been a slight letdown since the last of October. The gain among the smaller independent specialty mills has generally been less pronounced.

◆

New England machine tool builders in the past have obtained their share of Russian business placed in the United States, but like others have lost much of this volume to England and Germany. With England withdrawing its trade agreement with Russia in some details, machinery builders are hopeful that more business ultimately will be placed here.

These Russian contracts call for long term credits, a condition some builders are unable to meet. Others have been anxious to take on Russian orders, being in a position to accept the terms. It may be said in passing that the Russian government has never failed to meet payments on time.

It has been suggested that official action of the association might request closer co-operation with the federal government in an effort to stimulate Russian business through a better commercial understanding, but some stern opposition to this procedure has been advanced by New England machinery men who feel that the matter is one for each individual organization to accept or reject.

◆

Legal delays have held up the Point of Pines bridge, Saugus river, the largest structural job pending in New England. Substructure bids were thrown out for irregularities and the state legal experts are still pondering on whether or not authority has been granted to spend the appropriation . . . . Flag went up recently on the Christian Science Publishing society building in the Back Bay district, American Bridge Co. having fabricated and erected 2300 tons, completing the largest building job since the Boston postoffice . . . . Boston Pressed Steel Co., Worcester, recently took an order for 18,000 outlet guards for gas masks for the Edgewood, Md., arsenal, a strip and stamping job . . . . More New England firms are bidding on government material, but low prices somewhere in the lists fail to arouse much enthusiasm for these contracts. Stevens-Walden Inc., Worcester, recently booked 10,000 ball and socket joints for Wright Field, O., and the Reed & Prince Mfg. Co. shared in a bolt and rivet contract for the naval aircraft factory at Philadelphia . . . Kitchen equipment at Wellesley and Holy Cross colleges will take a fair tonnage of corrosion resisting 18-8 steel, demand for which has been restricted due to light building.

MIRRORS OF MOTORDOM

DETROIT

EXPERIMENTAL and laboratory staffs of automobile manufacturers have not been wholly immune to the rigors of economy, but they have suffered relatively less than other departments. As one result, although most manufacturers are only now beginning to assemble their models for 1933, engineering work on models for 1934 is under way.

Typical of this situation is a medium-price interest whose car is probably the largest selling in its field. The 1933 line, to be distinguished by radical changes in the body and comparatively few innovations mechanically, will not be shown until about Dec. 1, but a complete redesign mechanically is understood to have been ordered for 1934 and considerable progress already has been made—on blueprints.

Apart from so revolutionary a modification in automobile design as mounting the engine over the rear axle—something which is being seriously considered—the current objectives of engineers include a transmission permitting complete elimination of the clutch pedal, button control to supersede the gearshift lever, a transmission so automatic that by increased pressure upon the accelerator the proper gear ratio would be selected mechanically, independent mounting of wheels, and rotary overhead valves.

Efficiency Is Bettered

C. Harold Wills, formerly chief engineer for Ford and a few years ago builder of the Wills St. Claire, is understood to be working with Cadillac-LaSalle in the development of the latter mechanism. Pushrods, tappets and mushroom-type valves would be eliminated; an overhead shaft would have cams or lugs corresponding with ports in the combustion chamber. A quieter motor, compression ratio of 12 to 1 and utilization of power so complete that the exhaust would be cold are claimed as advantages. There is an outside chance that the experiments may mature for the 1933 line.

The Chrysler organization has been assiduous in the development of new transmissions, especially the elimination of foot clutching. Dodge will not go the complete length in its forthcoming models, but it will feature a new automatic clutch which disengages and re-engages automatically. In a new type of transmission all gears, including low and reverse, have helical-cut teeth.

Refinements Numerous

Dodge, which is now in production with the recall of 20,000 men and 10,000 more within three weeks, has a new steering mechanism in which the drag link moves parallel with the front axle instead of the frame. Six-inch balloon tires make the new Dodge the first car with superballoons standard equipment. Apparently the Dodge line will continue with sixes and eights, and no four.

Engineers of the White Co., Cleveland, are reviving the horizontal engine, with cylinders opposed, a type which was favored in the early days of the industry for the 2-cylinder jobs. The White engine is 12 cylinders, developing 225 horsepower, yet is only 16 inches high.

Hudson-Essex is completing its run on the 1932 line and recently has been operating one day a week, cleaning up its inventory. The Essex terraplane having been introduced only a few months ago, no change at show time is anticipated, although there is a tendency to offer more options in upholstery and trimming. Reports that Hudson might be converted into a 12-cylinder car are not likely to be borne out, but the introduction of a light eight, at about the price range of the regular Essex six and possibly bearing a name new to Hudson-Essex, is a probability.

On a weekly basis, Plymouth at 1000 units a day, 5 days a week, is leading the industry in production. Second is Ford, at 1000 to 1500 units a day, 3 days a week.

What W. S. Knudsen, president, characterizes as a "radically new line of Chevrolet passenger cars" will be introduced in December. The new series also will be a six, with a longer wheelbase and many changes in body design. A reduction in price also is announced, indicating a further tightening of competition in the low price field. The cleanup on the 1932 model was the best in history, according to Mr. Knudsen, and used car stocks of dealers are the smallest since 1925.

The conjecture that there will be two lines of Chevrolets, one to be a stripped job priced exceptionally low, is not covered by the Knudsen statement. How tense is the price situation may be sensed from the following comparison for 4-door sedans: Ford eight, $590; Ford four, $540; Essex terraplane, $550; new Plymouth six, $575; Chevrolet (1932), $590.

Olds To Buy Steel

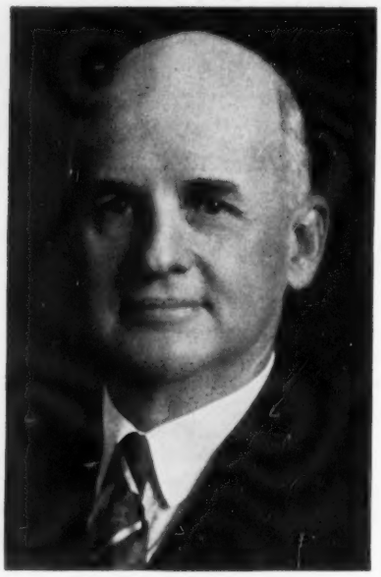
Buick continues slower than anticipated in getting into volume production of its 1933 model, and it may be late in November or early December before the first showing. The initial run of Buick will be 10,000. Either this week or next, Olds will make a steel buy for the first 10,000 of its new line. While Buick bodies will be considerably lower and otherwise radically changed, the Olds will present the greatest departure of any General Motors car for 1933.

Nash is swinging into production of its 1933 line, in which the present low price six will be superseded by an eight with a 116-inch wheelbase, and

(*Please turn to Page* 50)

Industrial Men in the Day's News

William C. Henning, General Manager and Secretary-Treasurer, A. Leschen & Sons Rope Co.



FOR 22 years he has directed sales for one of the largest manufacturers of wire rope.

THREE years of selling in the southern mountains propelled him into an executive position.

PEOPLE—especially the mountain folk, his college fraternity and golf are his hobbies.

IN SEPTEMBER, 1902, William C. Henning, then a recent graduate of DePauw university in southern Indiana, answered the call of the road, packed his grip with a few samples of wire rope and started to the mountains of Kentucky, Tennessee and the Virginias.

In a short while young Henning not only had demonstrated that he could sell goods but he also began to show exceptional executive ability, which often caused him to be called from his regular territory to handle some unusually hard problem in some other locality.

By 1905 his work was so outstanding that he was elected president and treasurer of the Durable Wire Rope Co., of Boston, which position he filled until Nov. 10, 1910, when he was elected secretary and treasurer of the A. Leschen & Sons Rope Co., of St. Louis, a position which he still holds.

In addition to his official titles with the Leschen company, Mr. Henning also has been its general manager, which has placed all sales methods directly under his control as well as made him largely responsible for the company's general policies, and the history of the Leschen company during the last 22 years—in which war, peace, prosperity and depression all have prevailed—has established him as a leading executive in his industry.

One of the most outstanding traits of Mr. Henning is his great interest in people. In spite of his busy business life, he always has been an active worker in many local and national organizations that operate for the public welfare, being a past president of the St. Louis Rotary club. He is an enthusiastic golfer, but one of his greatest pleasures is to get back to the mountains of Kentucky, Tennessee and the Virginias to the people whom he sold wire rope 30 years ago. He is a member of the Sigma Chi fraternity.

SAMUEL R. ROBINSON, formerly with Babcock & Wilcox Co., Barberton, O., has been made sales manager for Saginaw Foundries Co., Saginaw, Mich. A graduate of Virginia Polytechnic institute, Mr. Robinson has been connected with the Duquesne Steel Foundries Co., Coraopolis, Pa.; Philadelphia Roll & Machine Co., Philadelphia; Paper & Textile Machine Co., Sandusky, O.; and Industrial Brownhoist Corp., Bay City, Mich.; as well as the Babcock & Wilcox Co.

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A. C. Olfs, formerly Detroit representative for the Stewart Die Casting Co., became Detroit manager in charge of sales of the Stewart-Warner Corp., Chicago, effective Sept. 20. In his connection with the Stewart Die Casting Co., Mr. Olfs handled sales for the die casting division of the Stewart-Warner Corp. for most of Michigan.

Donald LaChance, for many years connected with the Stewart Die Casting Co. in the Chicago territory, has succeeded Mr. Olfs in charge of sales in Michigan for the Stewart Die Casting division.

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Thomas E. Howland, Pond Hill, Naugatuck, Conn., has been appointed Connecticut sales representative for David H. Smith & Sons Inc., Brooklyn, N. Y., iron and steel warehouse distributors.

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George Oenslager, chemist for the B. F. Goodrich Co., Akron, O., has been awarded the Perkin medal for 1933, awarded annually by the American section of the Society of Chemical Industry for the most valuable work in applied chemistry.

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George M. Sharer, connected with the Link-Belt Co. in Philadelphia in various capacities for the past 32 years, has been appointed sales manager of the company's eastern division with headquarters in Philadelphia. He has direct supervision of sales of all Link-Belt offices in the Atlantic coast states.

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V. L. Howe, formerly assistant publicity manager of the Heald Machine Co., Worcester, Mass., has joined A. W. Flemings Inc., Manchester, N. H., as director of technical advertising, and is in charge of the Worcester office, at 8 Portland

street, which has been opened by the Fleming organization.

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Earnest R. Standfuss, vice-president, Harnischfeger Corp., Milwaukee, has returned from a world tour of observation, study and recreation. He was absent seven months.

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Martin H. Kidder, public relations counsel, has been appointed promotional manager of the Tuthill Spring Co., Chicago, in charge of marketing the company's highway guard.

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H. A. Lomax, formerly with the Continental Roll & Steel Foundry Co. at Pittsburgh, has been appointed manager of the roll department of the Pittsburgh Steel Foundry Corp., Glassport, Pa. The latter company has just begun the manufacture of rolls, including steel, alloy and iron rolls.

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J. Frederick Rogers, Beals, McCarthy & Rogers; William C. Baird, Buffalo Pipe & Foundry Corp.; Edgar A. Forsyth Jr., Buffalo Forge Co. and Harris M. McCarthy, McCarthy Bros. & Ford, all of Buffalo, have been elected directors of the new junior chamber of commerce of Buffalo.

Observe New Chrome Brick Under High Temperature

Representatives of a large number of steel companies last week visited the experimental plant of E. J. Lavino & Co. at Plymouth Meeting, Pa. They gathered to observe the performance of a new chrome brick in a small open-hearth furnace. This brick is standing up to 3500 degrees Fahr. under actual operating conditions.

Schwab Says Worst Is Over

Returning from Europe Nov. 8, Charles M. Schwab, chairman, Bethlehem Steel Corp., said "it looks to me as though we have seen the worst and there will be a gradual recovery." He refused to predict the rate of recovery but said slow and steady progress would be best. In England, Mr. Schwab recently received the Melchett medal.

Worcester Castings Up

Worcester, Mass.—Foundry output in the Worcester district increased in September, according to the monthly report of the foundry council, Worcester Chamber of Commerce. Castings produced that month totaled 733,107 pounds, against 680,150 pounds in August, although output in September, 1931, was 1,314,432 pounds.

Obituaries

MALCOLM E. GRAY, 66, founder and chairman of the Rochester Can Co., Rochester, N. Y., and said to be the originator of the 5-day week in industry, died Nov. 7. He also was founder of the Atlantic Stamping Co. Born in Kalamazoo, Mich., where he learned the tinsmith trade, he went to Rochester in 1899 and in 1908 founded the Rochester Can Co.

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Gerald E. Brownell, 58, superintendent of the grinding machine division of Norton Co., Worcester, Mass., died Oct. 30. He had been employed by Norton Co. for 31 years, in 1918 becoming assistant superintendent and in 1920 superintendent.

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Frank H. Forler, formerly superintendent of the Pacific Coast Steel Co., in San Francisco, died at Tacoma, Wash., Oct. 31.

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Charles F. Medbury, 66, manager of the Montreal, Que., office of the Canadian Westinghouse Co., died Nov. 2. He held this post since 1909.

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J. Scott Button, in charge of the architectural engineering service bureau of the General Electric Co., Schenectady, N. Y., died Nov. 3. An employe of the company since 1896, he was a member of the welding committee of the American Institute of Steel Construction.

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Hugh David Walker, 66, managing director of Metal Craft Ltd., president of the Grimsby Foundry Co. Ltd., and of the Steel Art Furniture Co., all of Grimsby, Ont., died Nov. 7. He was also organizer of the Preston Metal Shingle & Siding Co., Preston, Ont., the Walker Steel Range Co., formerly of Windsor, Ont., and now of Grimsby, and the Specialty Mfg. Co.

Large Tires Make Pushing Wheelbarrow a Pleasure

LOW pressure balloon tires for airplanes, automobiles and trucks—and now for wheelbarrows.

Patterned after airplane casings, the new tires designed by the B. F. Goodrich Co., Akron, O., are claimed to facilitate the use of wheelbarrows in mud and deep sand and to minimize breakage.

Allis-Chalmers Mfg. Co., Milwaukee, is introducing a farm tractor equipped with pneumatic tires and having a plowing speed of 5 miles an hour and a road speed of 15.

Financial News of Steel Industry

AMERICAN ROLLING MILL CO., Middletown, O., reports for the third quarter a net loss of $860,189, after charges, which compares with a loss of $389,312 in the second quarter and a loss of $796,673 in the third quarter of 1931. Net loss for nine months of 1932 is $1,821,418, against $1,300,219 a year ago.

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United Engineering & Foundry Co., Pittsburgh, declared a quarterly dividend of 25 cents on the common stock payable Nov. 11 to record of Nov. 1.

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Follansbee Bros. Co., Pittsburgh, net loss in the third quarter was $182,410 after charges, a decline from the $314,902 of the second quarter. Net loss for nine months of 1932 was $798,508.

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Superior Steel Corp., Pittsburgh, reports net loss of $174,976, after charges, in the third quarter, compared with a loss of $125,128 in the second quarter. The loss for nine months of 1932 is $540,748, against $381,349 in the 1931 period.

Steel Employment and Payrolls Up in September

Washington—Reports from 214 iron and steel plants gave the number of their employes in September as 169,518, an increase of 1.7 per cent over August, and their average weekly payrolls as $2,032,069, a gain of 4.6 per cent. Forty cast iron pipe plants showed an increase of 8.5 per cent in employment, and 0.1 per cent in payrolls. The bureau of labor statistics also received reports from 154 machine tool companies, September employment increasing 5.8 per cent, and payrolls 4.8 per cent.

In 189 structural steelwork plants employment dropped 4.2 per cent, and payrolls 4.5 per cent. These comparisons are for identical plants in the two months.

Increases Coke Production

The Rainey-Wood Coke Co., Swedeland, Pa., has increased its output of by-product coke not only to take care of the increased demand for domestic and heating fuel but also to supply a blast furnace of the Alan Wood Steel Co. at Swedeland, put in blast Nov. 8.

EDITORIAL

The People's Mandate and Its Effect on Business

LAST Tuesday the American people expressed decisively their desire for a change in the administration of their government. Industry will attempt to appraise the significance of this event with unusual care because it represents a major reversal in national politics and because it has occurred at a critical time.

History affords no near parallel of the circumstances surrounding the overturn of Nov. 8. On the three previous occasions since the Civil war when the Republican party was repudiated at the polls the stage setting was decidedly different from that of today.

Grover Cleveland's victories in 1884 and 1892 came at a time when the issue was free trade versus protection. Industrial leaders at that time were deeply worried over the menace of a revenue tariff, which they feared would throttle growing American industries.

Much less concern over a Democratic victory was expressed by business executives in 1912 when Woodrow Wilson was elected. There were two good reasons for this. One was Mr. Wilson's assurance, on the eve of the election, that the tariff must be handled "very prudently so that no honest toil may be interrupted, no useful enterprise disturbed," and that the "trust" question must be dealt with to destroy only monopoly and "to leave business intact." The second and more potent reason was that industry was prosperous. News of Mr. Wilson's election came out simultaneously with the statistics showing that production of steel ingots in October had broken all records.

Acts of Last Democratic House Are Not Representative of Party Policies

From the foregoing it is clear that business now is facing a political situation that is unusual not only in its character but also in the circumstances under which it is ushered into the maze of our current problems. Manifestly the about-face reversal of public opinion in the short period of four years carries with it implications that should be of interest to industry. What are the factors in the present situation which portend favorable or unfavorable influences on business?

The primary objective of the new administration necessarily must be to hasten reconstruction. Closely allied with this are the problems of retrenchment in government expenses, increase in revenue, prohibition reform, policies on banking and currency, foreign relations, and the tariff. If business looks to the action of the Democratic house in the last session of congress for a clue as to how the new administration will act on some of these problems, it can find grounds for real apprehension. But the deplorable behavior of that body, fortunately, is not a fair reflection of Democratic policy. Many votes for the payment of the bonus, for pork barrel legislation, manipulating the currency, etc., were cast purely for political effect.

Effectiveness of New Administration Depends Upon Use of Available Able Leaders

Unless business men encounter sound evidence to the contrary, they should assume that the policies of the new administration will be dictated by the able Democrats who by experience and actual test of responsibility have proved their fitness. Business will have little to fear if the President-elect selects his advisors from the eminent talent available in his party. On this phase of the situation we can do no better than repeat a statement that appeared in this column just 20 years ago: "One of the most difficult tasks of the incoming president will be to resist the influence of the worst men of his own party."

The decisiveness of the vote of Nov. 8 is a favorable factor. Seldom has a party assumed direction of the government with such powerful control in both houses of congress. While top-heavy majorities sometimes prove unwieldy, difficulties from this source are more than offset by the concentration of full responsibility in one party. The fact that the Democrats will be held strictly accountable for legislative as well as executive performance is a strong incentive for co-operative, constructive action.

Strongest of all assurances to business for the safe conduct of government is found in the very seriousness of the present economic situation. In a period of ordinary conditions, any newly enthroned administration would be tempted to experiment with the pet doctrines of its platform. Today the challenge to the new incumbents in office is too formidable to permit of toying with theoretical panaceas.

Business already has forgotten the heat and fanaticism of the campaign. It is buckling down to work with renewed vigor. It will stand united in support of the newly constituted authority in its battle for reconstruction.

THE BUSINESS TREND

October Gains Smaller Than Those of September

MONTHLY figures now coming to light show that in spite of the unsettling influence of the political campaigns, industrial activity held up remarkably well in October.

The daily average output of pig iron gained for the second time since the record low-point established in August. In September the daily average increased 16.2 per cent over August, and in October the gain was 5.06 per cent. The operating rate in the tenth month was 14.7 per cent of capacity compared with 12 per cent in August and 14 per cent in September. Stacks blowing increased from an all-time low of 41 on Aug. 31 to 46 on Sept. 30 and to 50 on Oct. 31. The gain of four active stacks in October as against a gain of five in September indicates a more encouraging outlook than is reflected in the daily average gain of only 5.06 per cent in October as against the 16.2 per cent rise in September.

Steel ingot output gained again in October. The daily average was 41,098 tons compared with 37,507 tons in September and 30,830 tons in the record low month of August. The gain in October was 9.5 per cent compared with 16.2 in September. Per cents of operation were 14.26 in August, 17.34 in September and 19 in October.

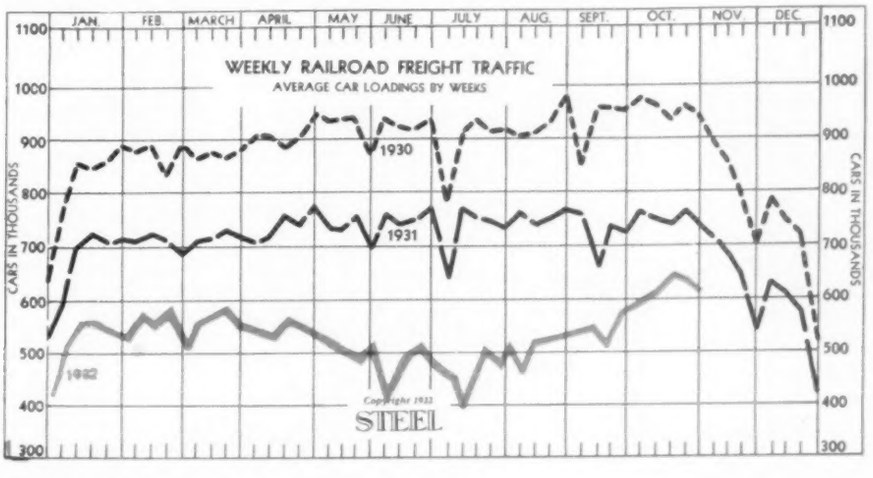
Freight car loadings rose to a high point for the year in the week ending Oct. 15. Losses were recorded in the last two weeks of the month, nevertheless the weekly average for October stands well above the 600,000 figure, a point not even approached in any single week in 1932 prior to October. Students of charts will have noted that as of Oct. 29 the line of car loadings is nearer to that of the 1931 trend line than at any time since early in January.

Among the discouraging features of business statistics is the recent relapse in commodity prices. Bradstreet's index for Nov. 1 was $6.96 compared with $7.27 on Oct. 1, $7.17 on Sept. 1, $6.79 on Aug. 1 and a low of $6.72 on July 1.

Election Removes Another Uncertainty from Path of Business Progress

The concensus of opinion among informed observers seems to be that business displayed an encouraging undertone of strength throughout the trying pre-election days. Sentiment in many quarters had thoroughly discounted the outcome of the election in advance of the event.

Now that the result is known, industry is buckling down to business with renewed vigor, and with relief that the uncertainty of election now is out of the way.

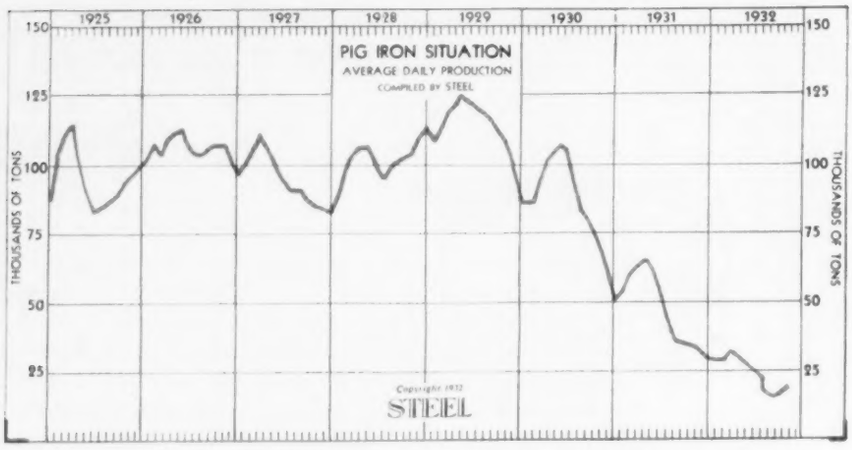


1932

Oct. 29.. 617,642
Oct. 22.. 642,173
Oct. 15.. 650,578
Oct. 8.. 625,636
Oct. 1.. 622,075

1931

Oct. 31.. 740,063
Oct. 24.. 769,673
Oct. 17.. 761,719
Oct. 10.. 763,864
Oct. 3.. 777,837



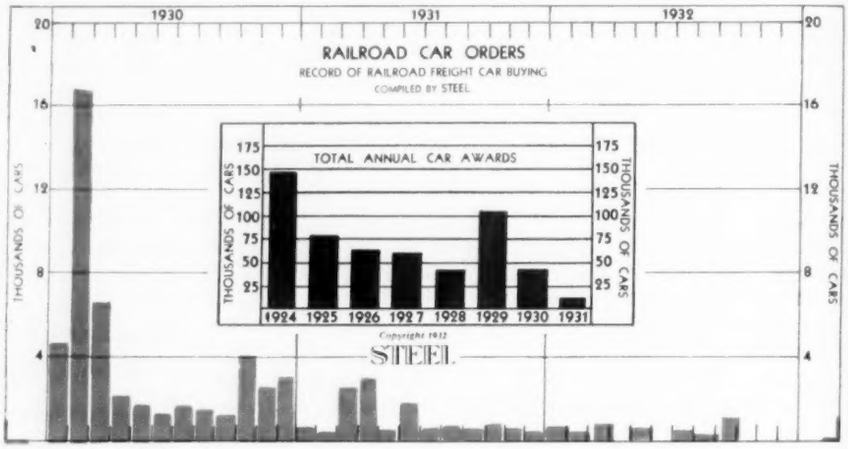
	1932	1931
October	20,795	37,831
September	19,788	38,947
August	17,035	41,264

Pig Iron Output Continues Upward Movement

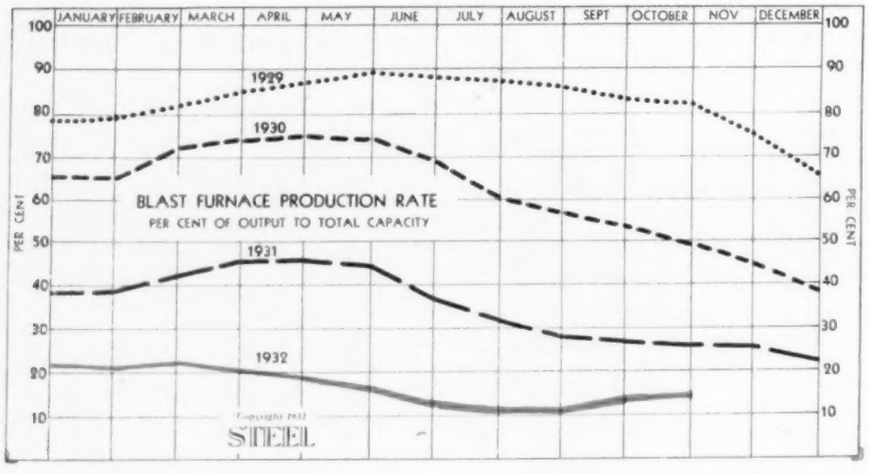
With the second upward movement registered in October, the average daily output of coke pig iron has recovered a portion of the declining trend that was so pronounced during the summer months. The average daily production in October was 20,795 gross tons, a rate which practically matched the 20,867-ton output in June. The September output of 19,788 tons had shown a 16.2 per cent gain over August's all time low point of 17,035 tons.

No Freight Car Awards Placed in October

There were no awards placed for domestic freight cars during October. This is the third time this year when builders have encountered an entire absence of demand. Bookings during the first ten months, of 1,687 cars, have been the smallest on record, and compares with 9,648 in the corresponding period of 1931, a total 39,796 in 1930 and 90,034 in 1929. The immediate outlook appears to be confined largely to repair work.



	1932	1931
October	0	980
September	1,298	703
August	5	1,304



	1932	1931
	Per Cent	
October	14.7	26.3
September	14.0	27.0
August	12.0	28.7

Blast Furnace Activity Gains Slightly in October

With a net gain of four stacks during October, blast furnace activity continues to show gradual improvement. Relating production to capacity, the operating rate for October was 14.7 per cent, compared with 14 per cent in September and 26.3 per cent during October last year. On the last day of October 50 blast furnaces were in operation compared to 46 in blast on Sept. 30.

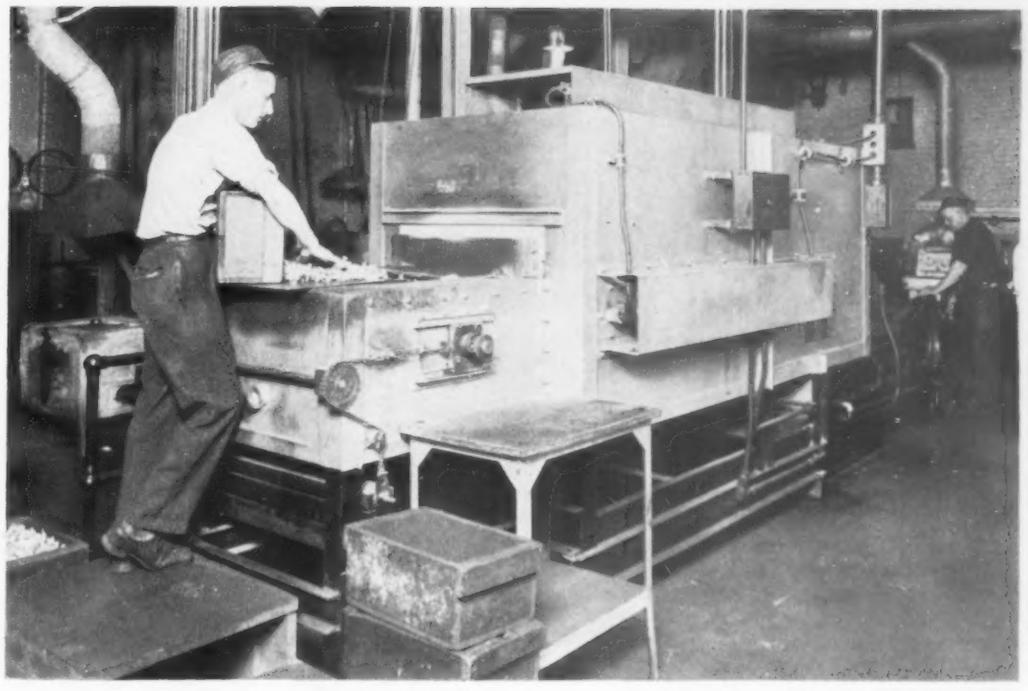


FIG. 1—Continuous electric heat treating furnace equipped with flexible wire conveyor belt and used for heat treating or normalizing small parts for typewriters

FLEXIBLE WIRE CONVEYOR BELTS AID TO CONTINUOUS HEAT TREATING

NECESSITY for quicker and less expensive methods for heat treating a wide variety of small parts; for washing, enameling and drying stamped metal parts; for baking foods, annealing glass, drying precipitates, and similar operations, has led to an intensive study of materials and methods, with the result that the manufacturer now is afforded greatly improved apparatus with which to work, and equipment which may well decrease his cost greatly over former methods. The continuous process for heat treating long has been regarded as a desirable goal and various systems have been used for moving parts continuously through furnaces. The first step toward this end was the use of shaker hearths which advance parts through a furnace more or less jerkily. Trays which were carried through the heating zone by chains protected from the heat of the furnace have been in use for years although service life of the material was always problematical, failure frequently was encount-

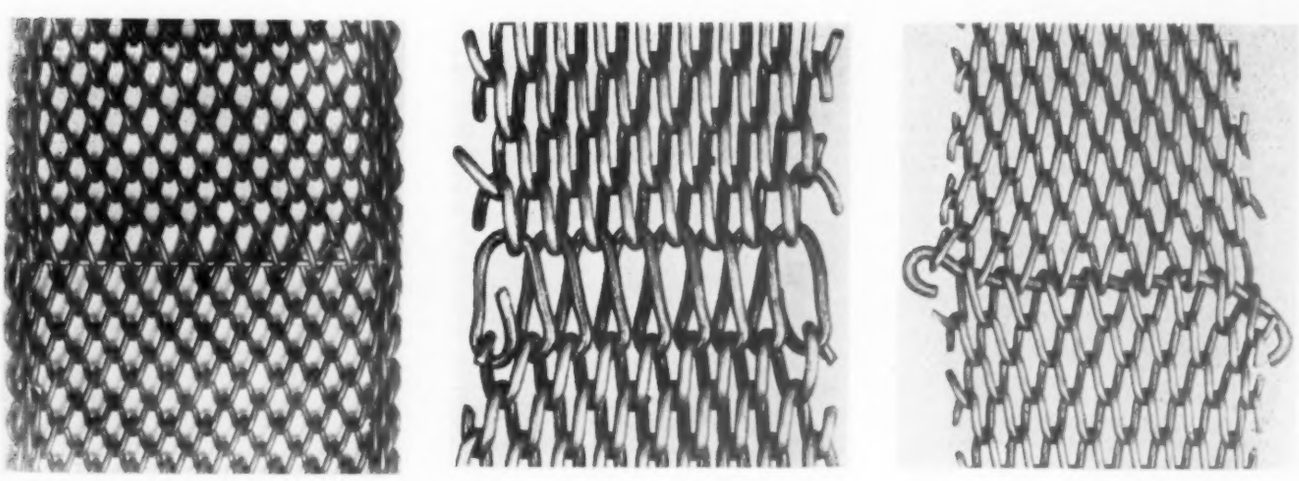
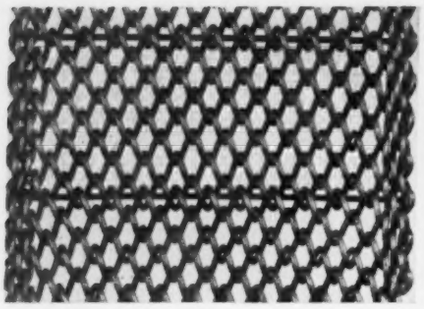


Fig. 2 (Left)—Simple spiral wire belt, upper portion being spiraled in opposite direction from lower portion, to prevent creep of belt on drum. Fig. 3 (Center)—Spiral connector belt showing distortion of fabric and spiral connector after 8000-pound pull. Fig. 4 (Right)—Special straight wire connector is used in this belt, showing distortion after 8000-pound tension



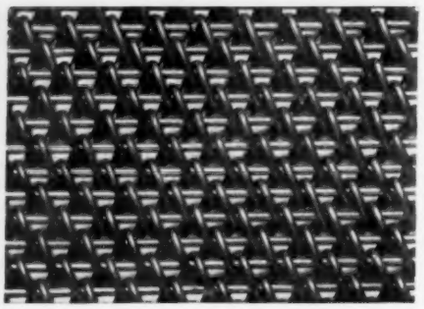


Fig. 5 (Left)—This type of belt is known as safety selvage with multiple edge providing increased strength for heavy loads. Straight-rod reinforcement is used in every fifth spiral. Fig. 6 (Right)—Minimum stretch and contraction are provided by this type of belt with straight-rod reinforcement placed through every spiral

ered at critical times, and replacement was costly.

Ultimately, however, heat conserving furnaces were developed which embodied careful design, temperatures controlled automatically and rigidly, atmospheres artificially maintained to produce the minimum of surface action, and, last but not least a dependable carrier which transported parts, both large and small, at a uniform speed and either quenched or cooled them slowly after the heating.

Flexible wire conveyor belts play an important part in the construction of continuous heat treating furnaces. These belts may be classified as an endless series of individual spiral coils or links automatically woven to insure even mesh and uniform knuckling, providing perfect point contact and alignment. Wickwire Spencer Steel Co., New York, specializes in the manufacture of these flexible wire belts and supplies them woven in steel, brass, copper, monel metal and high-temperature or chemical resistant alloys. A recent development is the adaptation of corrosion-resisting steel wire in the fabrication of conveyor belts.

An initial impetus for the use of woven wire conveyor belts in continuous heat treating probably was furnished by the glass industry where for some time glass has been annealed in long continuous furnaces, the product being carried on belts which resembled a closely woven chain link fence. In this work, temperatures were not excessive and an ordinary low-carbon basic steel wire would stand up long enough to make the process a success. However, the belt scaled gradually, elongated excessively, resulting in frequent replacements, and often narrowed down so that at times less than three quarters of the width of the furnace could be used.

Use of nickel and chromium alloys helped materially in the scaling problem, and the development of the so-called "straight-rod reinforcement"—the insertion of a straight wire through the hinges of the spirals in the belt—broke up the unstable diamond sections of the spiral and produced a friction-held triangle which resisted the tensions encountered in use. To this feature is due a large measure of the success of these belts, and their ability to stand up under extreme conditions of loading and heating.

Fig. 2 shows a simple spiral belt, the top portion of which is spiraled in a right-hand direction and the lower portion in a left-hand direction. The purpose of this is to eliminate the creep of the belt on the pulley. Due to the angularity of the weave, a spiral belt tends to pull off to one side of the drums. If this angularity is reversed at intervals less than the wrap of the belt on the drum, this tendency is neutralized and the belt will travel in a straight line.

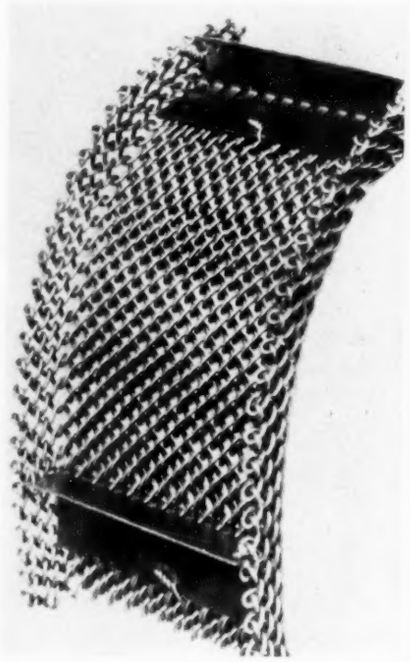


Fig. 9—Flexible wire conveyor belt for quench tank service with special guard edge and angle lifts attached to the belt

Fig. 2 also shows a straight wire

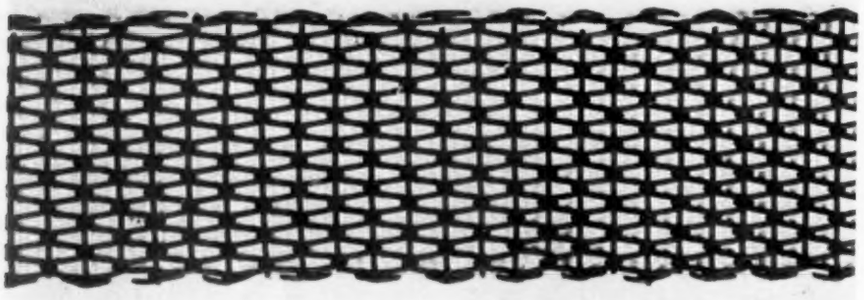
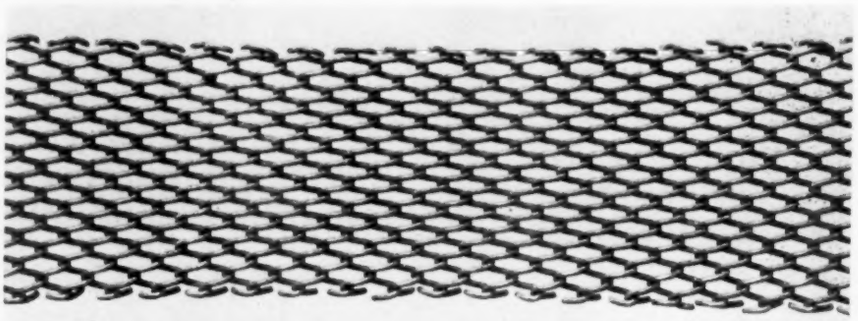
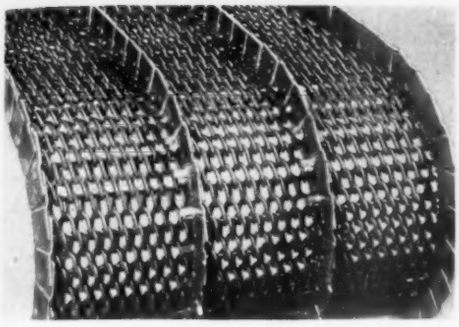
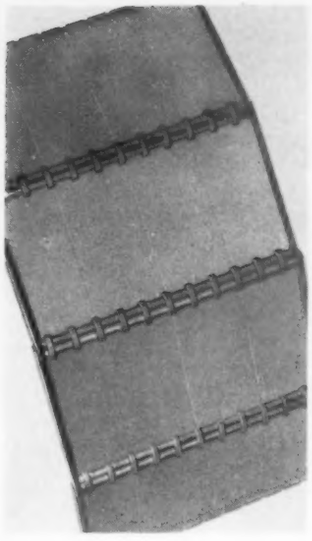


FIG 7 (Above)—Appearance of a flexible wire conveyor belt with straight-rod reinforcement, after being loaded at 1800 degrees Fahr. No contraction in width was noted; elongation was 20 per cent. Fig. 8 (Right)—A similar type of belt but without straight-rod reinforcement, which carried one-half the load of the belt above at 1800 degrees Fahr. Contraction in width was 28 per cent; elongation was 37 per cent







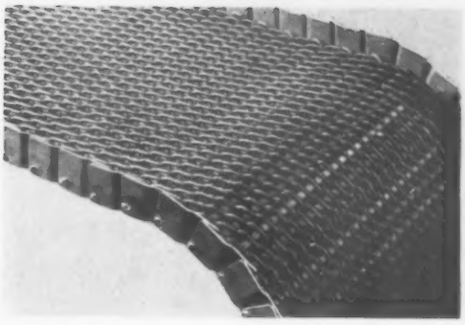


Fig. 10 (Above)—Flexible wire conveyor belt with removable dividers and edges attached to separate materials being moved

Fig. 11 (Left)—Plate-type belt with flexible linkage. Fig. 12 (Above)—Closeup view of flexible edges attached to wire belt

used as a connector; former belts have been joined by a spiral enmeshed with the various sections. Figs. 3 and 4 show the advantage of the straight wire in stiffening the belt and preventing narrowing. In like manner, in Figs. 7 and 8 the effect is shown of introducing reinforcing wires upon the distortion of the belt. The stability of the triangular figure in maintaining the width of the belt in use is apparent.

Numerous other features have been developed such as safety selvage, Fig. 5, which materially strengthens the edges of the belt, keeps the spirals in alignment, protects the knuckles of the belt from damages and presents a smoother edge as a safeguard against damage to workmen or clothing. In cases of extreme load and tension, the straight rod reinforcement may be inserted into every spiral as shown in Fig. 6. This produces a belt having a minimum of stretch and contraction and at the same time sacrificing none of its flexibility.

Special Designs Evolved

Various edges and dividers may be applied, as shown in Figs. 10 and 12, which prevent articles from falling off the belt, and allow different products to be run at the same time without danger of being mixed. If material is to be conveyed up an incline, a special lifting device may be applied as shown in Fig. 9. In this belt also, the fabric itself is turned up at the edges at right angles to the face of the belt to prevent the material being handled from falling off. This construction likewise does not interfere with the flexibility of the belt.

One common defect of all spiral belts is the possibility of small articles falling through the mesh or becoming entangled in the meshes. This difficulty led to the development of the plate-type belt shown in Fig. 11. This belt particularly must be built to suit individual specifications, as its success depends upon the proper relation between plate dimensions and diameter of drum. The link is so constructed that the joints cannot "freeze" at high temperatures, and a free articulation is assured at maximum loads and temperatures. It readily will be seen that side guards may be applied easily and that there is no chance for even small parts dropping through the belt.

Engineered for Installation

Flexible wire conveyor belts have been adopted by many continuous furnace builders. Fig. 1 shows an electric furnace used in a typewriter plant for continuous annealing or normalizing of small parts.

Every conveyor belt installation is the result of a complete engineering study as to size, quantity and kind of material to be treated. There are no stock sizes of belts any more than there are of furnaces. The manufacturer has made his studies and as a result of his experience, is able with the help of a questionnaire to recommend the proper construction and material to meet individual requirements.

Belts may be made of spirals from as fine as 40 wires to the inch to as coarse as 2½-inch mesh, in any width from 1 inch to 14 feet or even wider by the use of special clips for joining parallel widths. As for materials, steels, bronze, brass, copper or monel metal may be used for ordinary temperatures and the chrome-nickel alloys for temperatures up to 2000 degrees Fahr. Thermal capacity of the belts is low, and little excess weight need be heated in addition to the work.

Program Is Announced for Founders Association

Members of the National Founders association will devote two days, Nov. 16-17, to a consideration of problems facing the foundry industry. This, the thirty-sixth annual convention of the association, will be held in the Waldorf-Astoria hotel, New York.

Reports of the president, S. Wells Utley, and commissioner, A. E. McClintock, will be presented at the opening session. Among addresses scheduled for the various sessions are: "Unemployment in the Depression," by F. Spencer Baldwin, director of research, National Industrial Conference board, New York; "The Worker Carries On," by Whiting Williams, consultant on industrial problems, Cleveland; and "Silicosis in the Foundry — Characteristics-Control-Compensation," by Carey P. McCord, medical director, Industrial Health Conservancy Laboratories, Cincinnati.

Introduces New Line of High-Temperature Paints

Laclede Christy Clay Products Co., St. Louis, manufacturer of fire brick, refractory cements, etc., is introducing its new Laclede C-10 high-temperature paint, an odorless heat-resisting, protective coating material for miscellaneous industrial applications. The most refractory paint of this new line is the black paint which will withstand temperature of approximately 1800 degrees Fahr. Paints of other colors manufactured include red, green, gray and white and will withstand temperatures from 1000 to 1400 degrees Fahr.

The paint is shipped in liquid form, ready for application and is of the same consistency as ordinary paint with good covering quality. Extensive experiments already have proved its adaptability in such applications as boiler and furnace fronts, breaching, domestic heating equipment, gasoline engine exhaust manifolds, locomotive fronts, furnace doors, front rotary kilns and various other installations. The paint is packed in 1-quart, 5-gallon cans and in 30-gallon and 50-gallon drums.

Insulating Old Open Hearths To Improve Efficiency

BY S. M. JENKINS
Armstrong Cork & Insulation Co.

THE greatest opportunity for increasing efficiency and reducing fuel costs in old open-hearth furnaces is to be found in proper insulation of the walls above the ground in both slag pockets and regenerators. Most of the trouble is caused by air infiltration, but this can be eliminated by a relatively simple addition of insulation and steel plate outside construction which can be installed by tearing out only the outside red brick walls and salvaging the present fire brick walls, buck stays, arches and other parts.

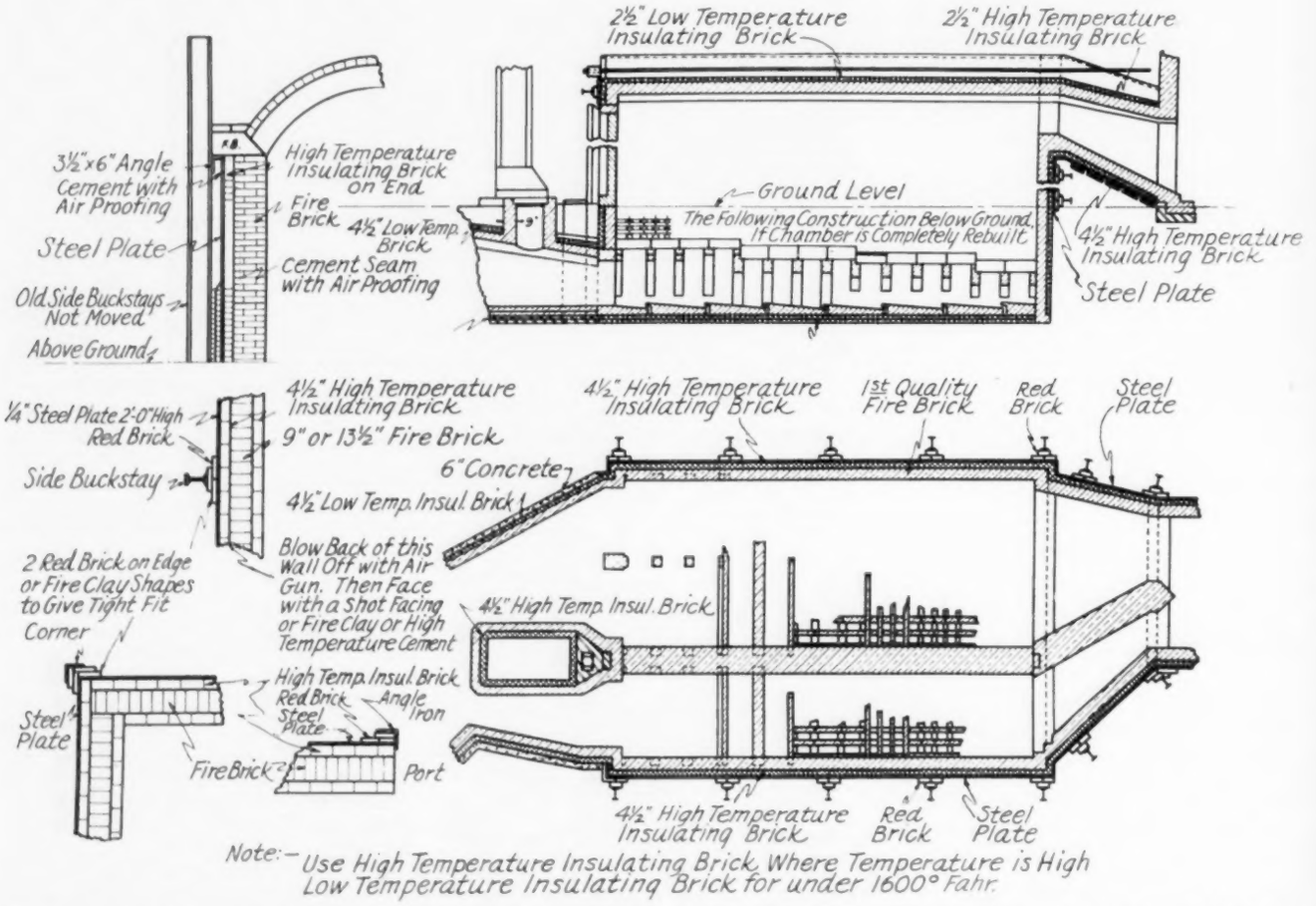
In some instances, of course, it will be found most desirable to tear out the slag pocket and regenerator chambers for complete rebuilding and insulating, but in many cases it will prove practical only to tear out the outer 9-inch red brick wall in both chambers above the ground, also the side walls of the fan tail and to provide insulation as will be described shortly.

After the red brick are torn away, the back of the fire brick work should either be blown off with an air gun or brushed off with a wire brush, then moistened slightly to remove dust and the open fire brick joints filled with fire clay troweled on, or preferably shot on with an air gun, At the same time all unevenness should be overcome with the fire clay material.

At a point 4 5/8 inches out from this wall 2-foot wide steel plates 3/16 inch or so thick should be placed on edge, these plates being of proper length to extend from one I-beam buckstay to another. The perpendicular joints of these plates should come in front of the old buckstays and be sealed with an air prevention material. Then, as may be seen from the accompanying sketches, the high-temperature or low temperature insulating brick, as the case may be, are laid dry in place between the steel plate and the fire brick wall. A fire clay slushing should be used between the insulating brick and the old fire brick wall, this to provide an air-tight wall joint and also to make a strong solid wall.

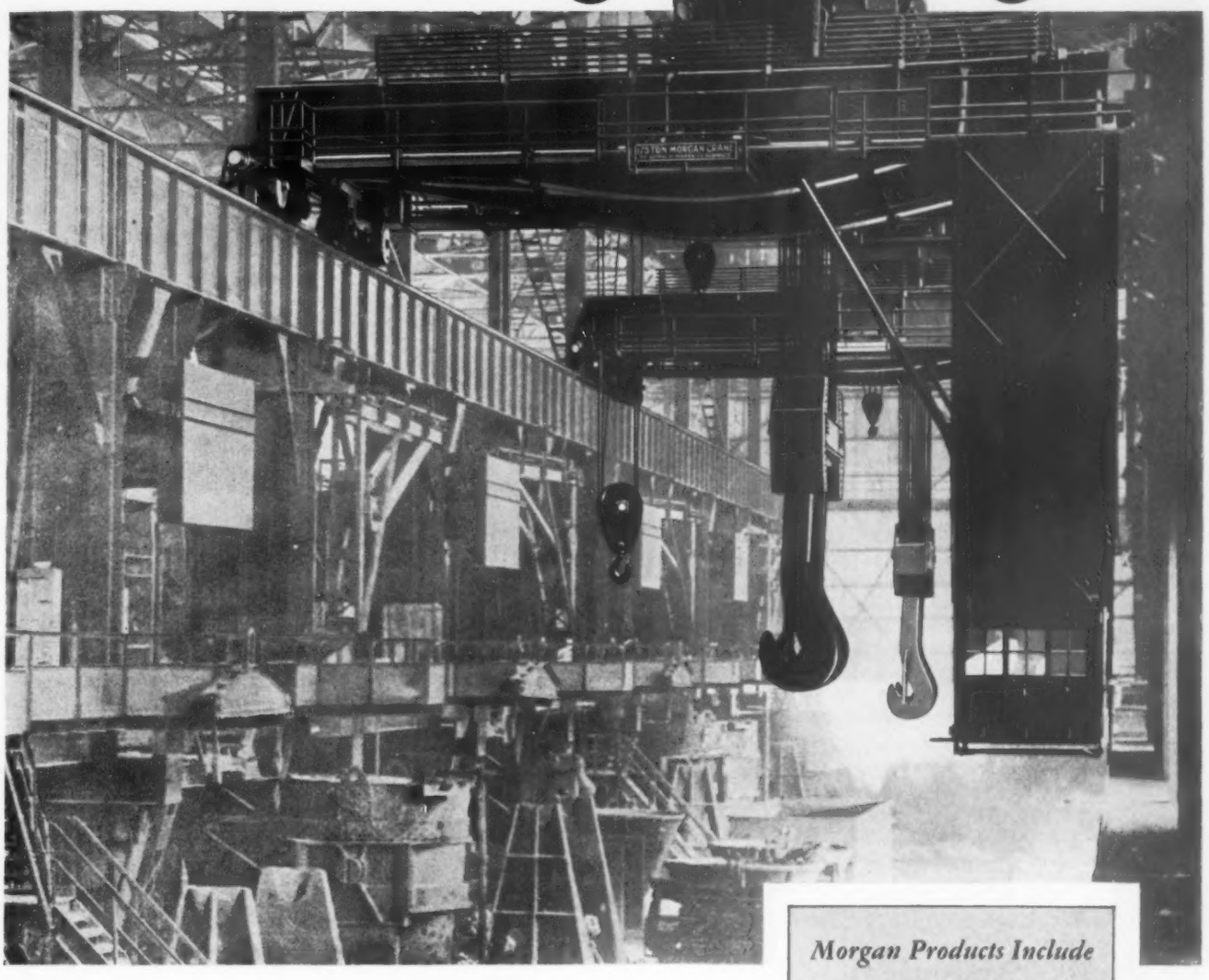
When the insulating brick are built up to a little above the top of the steel plate, a little air prevention material is applied to the edge of the plate and another 2-foot wide section put into position. This construction continues up until aproximately 7 inches below the skewback. The old red brick wall in back of the skewback is left in place and supported by a steel angle section with legs of approximately 3½ inches, the angle being fastened to the old buckstays.

The last course of insulating brick to seal up under the old wall at the skewback projection is to be stood up on end, or 9-inch soldier fashion. These brick will catch 2 inches below the steel outer plate as it has been let down 7 inches from the skewback projection. After this section is finished, the 7 inches of exposed insulating brick are to be faced with air prevention material as well as the underside of the pro-


2½" Low Temperature Insulating Brick
2½" High Temperature Insulating Brick
3½"x6" Angle Cement with Air Proofing
Steel Plate
Old Side Buckstays Not Moved
Above Ground
High Temperature Insulating Brick on End
Fire Brick
4½" Low Temp. Brick
Cement Seam with Air Proofing
Ground Level
The Following Construction Below Ground, If Chamber is Completely Rebuilt
4½" High Temperature Insulating Brick
Steel Plate
¼" Steel Plate 2'-0" High
Red Brick
Side Buckstay
2 Red Brick on Edge or Fire Clay Shapes to Give Tight Fit
Corner
Steel Plate
Fire Brick
Port
4½" High Temperature Insulating Brick
9" or 13½" Fire Brick
6" Concrete
4½" Low Temp. Insul. Brick
Blow Back of this Wall Off with Air Gun. Then Face with a Shot Facing or Fire Clay or High Temperature Cement
High Temp. Insul. Brick
Red Brick
Angle Iron
Steel Plate
4½" High Temperature Insulating Brick
1st Quality Fire Brick
Red Brick
Steel Plate
4½" High Temp. Insul. Brick
4½" High Temperature Insulating Brick
Red Brick
Steel Plate
Note:— Use High Temperature Insulating Brick Where Temperature is High
Low Temperature Insulating Brick for under 1600° Fahr.

Sketches showing proper methods for insulating old open-hearth furnaces to decrease fuel costs and to increase efficiency

BUILT BY MORGAN *Engineering* » »



THIRTY YEARS before the automobile became a recognized means of transportation, Morgan was building cranes for steel mills, establishing a tradition for integrity of materials and workmanship that has lasted for more than sixty years. And here are two of four Morgan Cranes in the pouring bay of a great modern steel mill, typical of present-day Morgan Engineering practice. These 175-ton, 8-motor, 54′-0″ Span, 4-Girder Type Ladle Cranes are designed with *safety first* paramount. All Morgan Ladle Cranes are equipped with roller or bronze bearings, worm or spur gear trolley, and hydraulic or mechanical bridge brakes, as preferred.

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jection out to the buckstay at the skewback height.

The 2-foot wide steel outside plates are held against the insulating brick by red brick turned on edge against the buckstays; if necessary, fire brick splits could be used This furring out takes up the difference between the thinner insulating brick wall and the old red brick wall.

With use of this type of construction, the fire brick setting is not weakened, as the insulating brick have a high crushing strength and afford excellent support to the fire brick. Furthermore, construction from the ground up on all sides and end walls saves considerable heat and it also gives a fine and efficient air seal to the various walls.

Arches, Fan Tails Covered

The fire brick arches of the regenerator and fan tails are to be covered with a 2½-inch course of low-temperature insulating brick in the regenerator section and high-temperature insulating brick in the fan tail section, laid dry, and after the fire brick arch is up to temperature and the total expanded, the insulating brick are keyed in place and grouted with insulating mortar.

This construction allows the fire brick to expand or contract without cracking the insulating brick secondary arch. Furthermore, this insulating brick arch should form an air seal and for that reason should be coated with air sealing material approximately 3/16-inch thick. By sealing up the regenerator chambers along with the fan tail and slag pocket, it will be found that the furnace can be operated on thermostatic control.

Insulating brick used as described in the foregoing can be salvaged very easily and reused either in repairs or for new open hearths and slag pockets, for it amounts really to no more than dry storage.

Chicago Appraisal Plan Ruled Out

THE federal trade commission has ordered Chicago district machine tool distributors to stop using its "Chicago Appraisal Plan" or similar appraisal plan, and to cease and desist from adoption of any other plan whereby members suppress or restrict competition between and among themselves in bidding for or appraising used machinery offered in trade or as part payment for new machinery.

Members of the organization do business in six Middle Western states, including Illinois, Indiana, Iowa, Wisconsin, Michigan and Nebraska. Since the plan became effective about Oct. 1, 1928, more than 1000 transactions have been reported to the central office by members, and the aggregate value of used machinery involved is approximately $250,000. About 85 per cent of the total volume of business in new tool machinery transacted in the Chicago district is done by members of the association.

Pursuant to agreement among themselves, member distributors register with a central office or exchange with each other their firm bids or appraisals on used machinery. These have been offered to them as part payment for new machinery. The member making the first or highest appraisal or bid is to accept or purchase the used machinery. He is to pay cash regardless of whether he shall make a sale of new machinery to the customer offering the used machinery as part payment.

Seek To Correct Bidding Ills

The plan was adopted "with the purpose and object of eliminating competitive bidding by its members, and to limit the amounts allowed by them for used machinery," according to the commission's findings, made after testimony was taken. A central office was established as a clearing house for all information concerning trade deals among members when used machinery was accepted as a part payment for new.

Although all members had agreed to observe the plan in their dealings with customers, as a matter of actual practice, only the larger members operated under the plan, due to the fact that dealers in new machinery generally prefer not to accept used machinery as part payment for new.

The executive committee of the association is as follows: J. R. Porter, Marshall & Huschert Machinery Co., chairman; N. A. Booz, Federal Machinery Sales Co., secretary; E. P. Essley, E. L. Essley Machinery Co., treasurer; E. H. Wachs, Wachs-Gregg Co.; and P. E. Rice, Hendley Machine Corp.

As was pointed out in an article appearing in the April 6, 1931, issue of STEEL, the insulating of open-hearth furnaces is a comparatively recent development and one commanding the attention of many operators. Data were presented on the grades of insulating brick to be used, how they should be installed and the cost involved. The accompanying article describes a method for insulating old open hearths to derive comparable reduction in fuel costs and increase in efficiency. The author, S. M. Jenkins, is assistant sales manager, in charge of high-temperature insulation, Armstrong Cork & Insulation Co., Lancaster, Pa.

Ajax Grants License To Make Heating Furnaces

High-frequency or coreless induction furnaces have been used principally for melting and refining metals, especially steel. However, their use for heating steel shapes either with continuous motion of the piece to be heated or with batch-type furnaces offers a large field for this method of electrical heating, according to the Ajax Electrothermic Corp., Trenton, N. J.

The Ajax company, therefore, recently licensed the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to make high-frequency or coreless induction furnaces or heaters for certain applications in the field of heating. In return, Westinghouse has granted Ajax a license to use certain patents of the latter company.

It is expected that this new arrangement will stimulate the development of the high-frequency furnace for industry.

Dictionary of Electrical Terms Being Reviewed

A proposed dictionary of electrical engineering terms, representing results of over three years work by a committee of 120 scientists and engineers under the chairmanship of Dr. A. E. Kennelly, Harvard university, has been published for review and criticism prior to its submittal to the American Standards association for adoption as an American standard.

The report, prepared under the direction of the American Institute of Electrical Engineers, is a document of 208 pages listing over 3400 definitions ranging from the fundamental definition on which the science of electricity is based to definitions for practical applications, such as those for control equipment, generation, transmission and distribution, welding, illumination, wire and radio communication, electrobiology, and electrotherapeutics.

WANTED:

THE MANUFACTURER of these strip steel megaphone rims wanted a perfectly flush joint strong enough to withstand cold die-pressing, and quick and inexpensive to produce.

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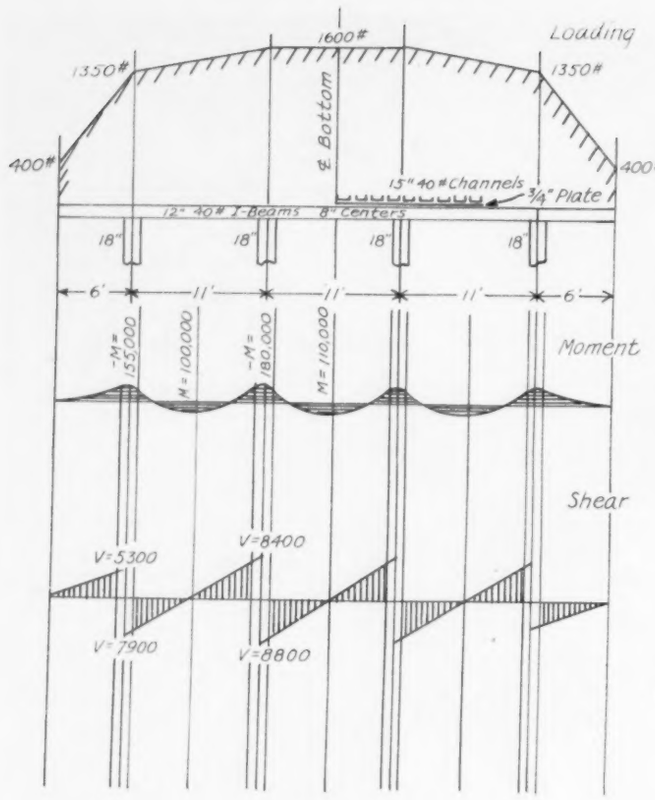


Fig. 12—Girder loading and data on bottom M. Total bottom steel weighs 131 pounds per square foot

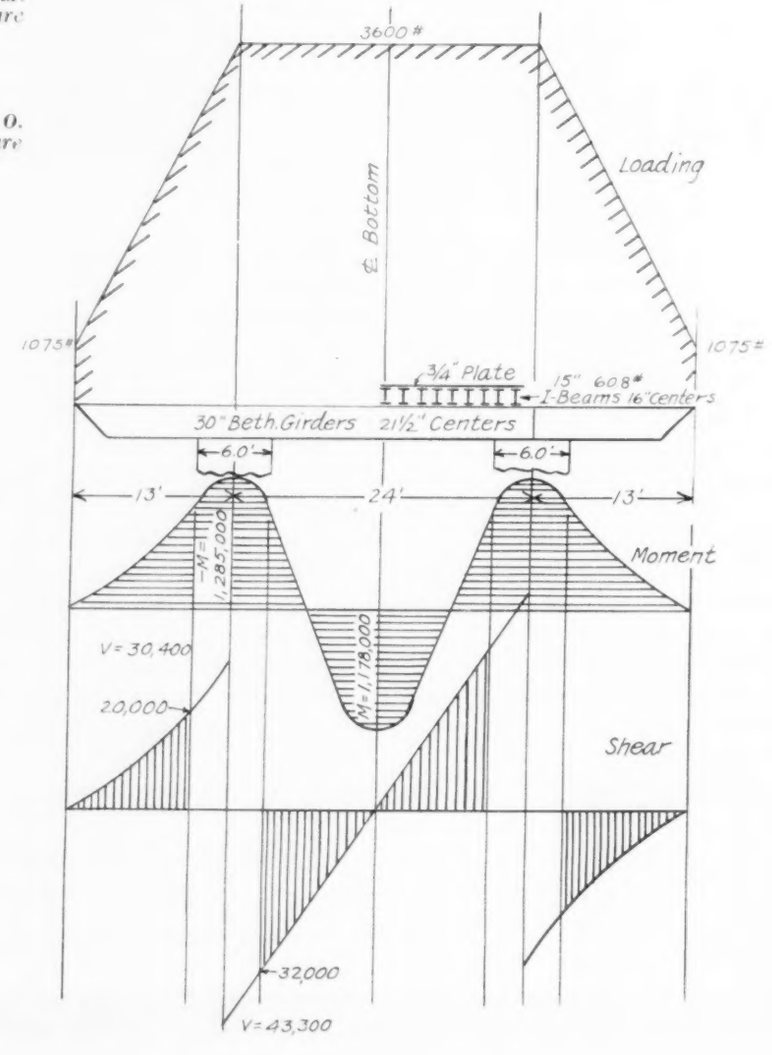
Fig. 13—Girder loading and data on bottom O. Total bottom steel weighs 181 pounds per square foot

IMPROVING OPEN-HEARTH FURNACE DESIGN

By WILLIAM C. BUELL JR.

Part I Bottoms

(Seventh Article of Series)



MANY furnace designers are of the opinion that the bottom steel of open hearths heretofore has been subject to thermal stresses far in excess of the normal expansion and static reactions. Examination of the outer surface temperatures of column c, Table IV, should dispel any such ideas on this subject even though the bottom be constructed without cross beams as is the case with bottoms D, F, K, L, and M. The principal information depicted in Figs. 12 to 16 including the principal sizes of steel, the essential dimensions, the loading, moment and shear diagrams is arranged for convenient comparison in Table XII. Recommended girder sizes also are included. Of the furnaces itemized in this table units G and L, were designed and built by contractors, the others by the steel companies themselves. The extremely light bottom of furnace M gives evidence of having received the most painstaking engineering design.

If metal is not subjected to severe thermal stresses (absent in the bottom steel) the girder system should be designed so that the fiber stress does not exceed 9000 pounds and the shear or web compression 5000

pounds. This gives a safety factor about twice as high as that used in ordinary structural design. However, girders with less than an 18-inch depth are not recommended since in many ways they do not conform with the connections and bracing of the superstructure.

The girders of furnace G listed in Table XII have been found satisfactory after several years use. A somewhat larger beam size should have been used although the shear value would have been increased somewhat on account of a thinner web in the larger beam, but even the higher value is relatively low. The girder built in furnace O is unnecessarily large. Its use not only represents an added item of capital cost but faulty engineering as well inasmuch as the uneconomic use of excessive material violates the tenets of engineering practice to almost as large a degree as the inclusion of insufficient material. The smaller and lighter beam suggested would prove equally satisfactory.

The 18-inch 75-pound beam included in furnace L, meets all conditions. While the calculation shows the 12-inch 40-pound beam included in furnace M to be perfectly stable, the use of beams as small as this can not be recommended, despite the fact that this particular furnace has been in use for a number of years with no distortion of the bottom girders. This bottom carries the heaviest square foot load shown in Table XIII. The unusual method of supporting the girder in furnace J. makes the beam used appear much too large. The 18 inch, 70-pound beams suggested would meet all specifications.

No particular girder size or spacing is recommended since these are dependent on the number and location of supports, the loads to be carried and the method of loading as well as the spacing. However, the extent to which the designer may go with the values of fiber stress, shear and web compression will be indicated. Given the proper values, the steel designer should encounter no difficulty with these simple designs. The correctness of keeping under

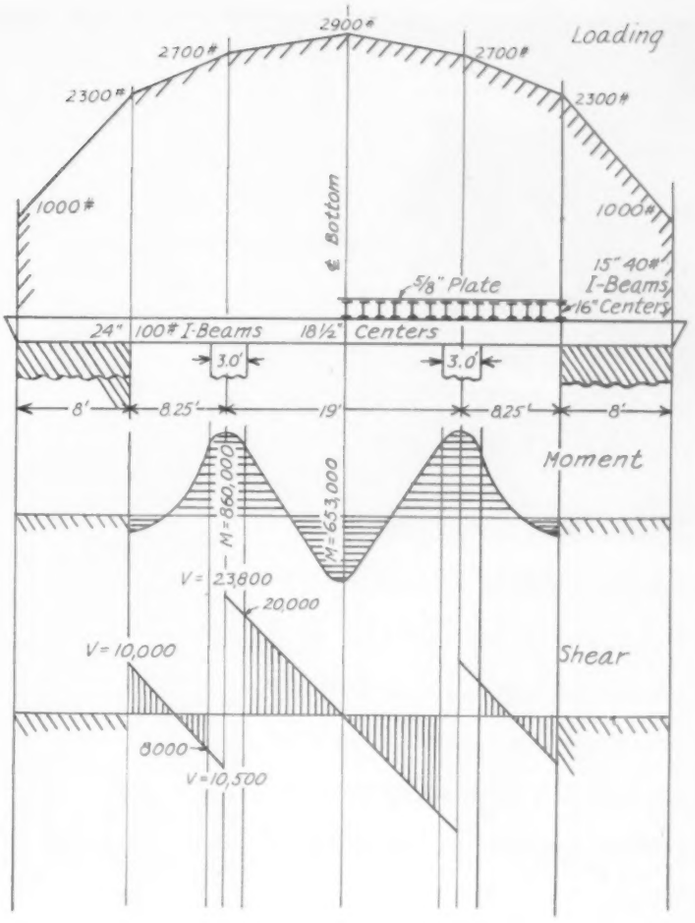


Fig. 14—Girder loading and data on bottom J. Total bottom steel weighs 121.5 pounds per square foot

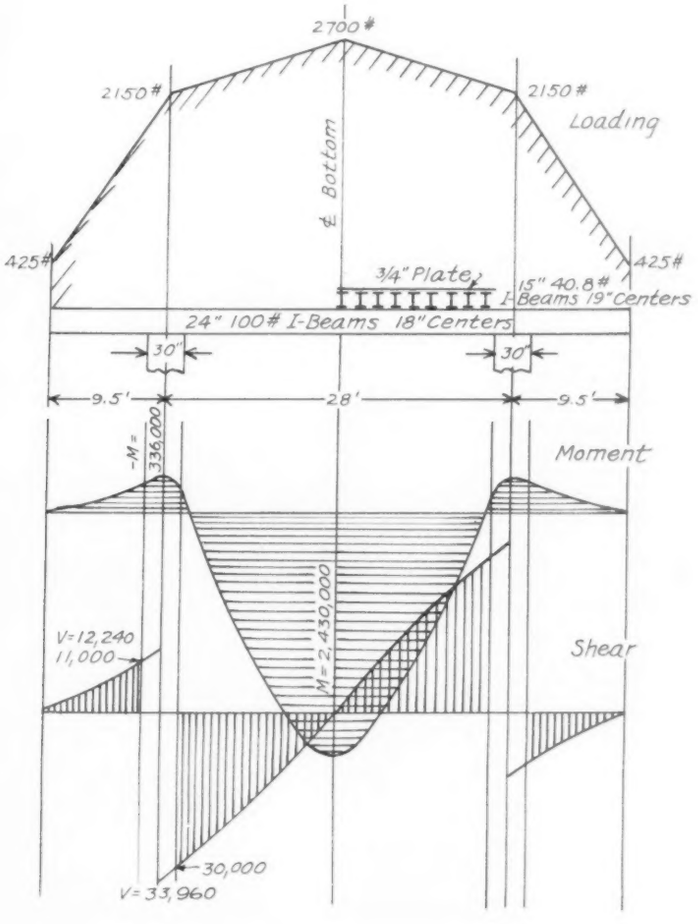
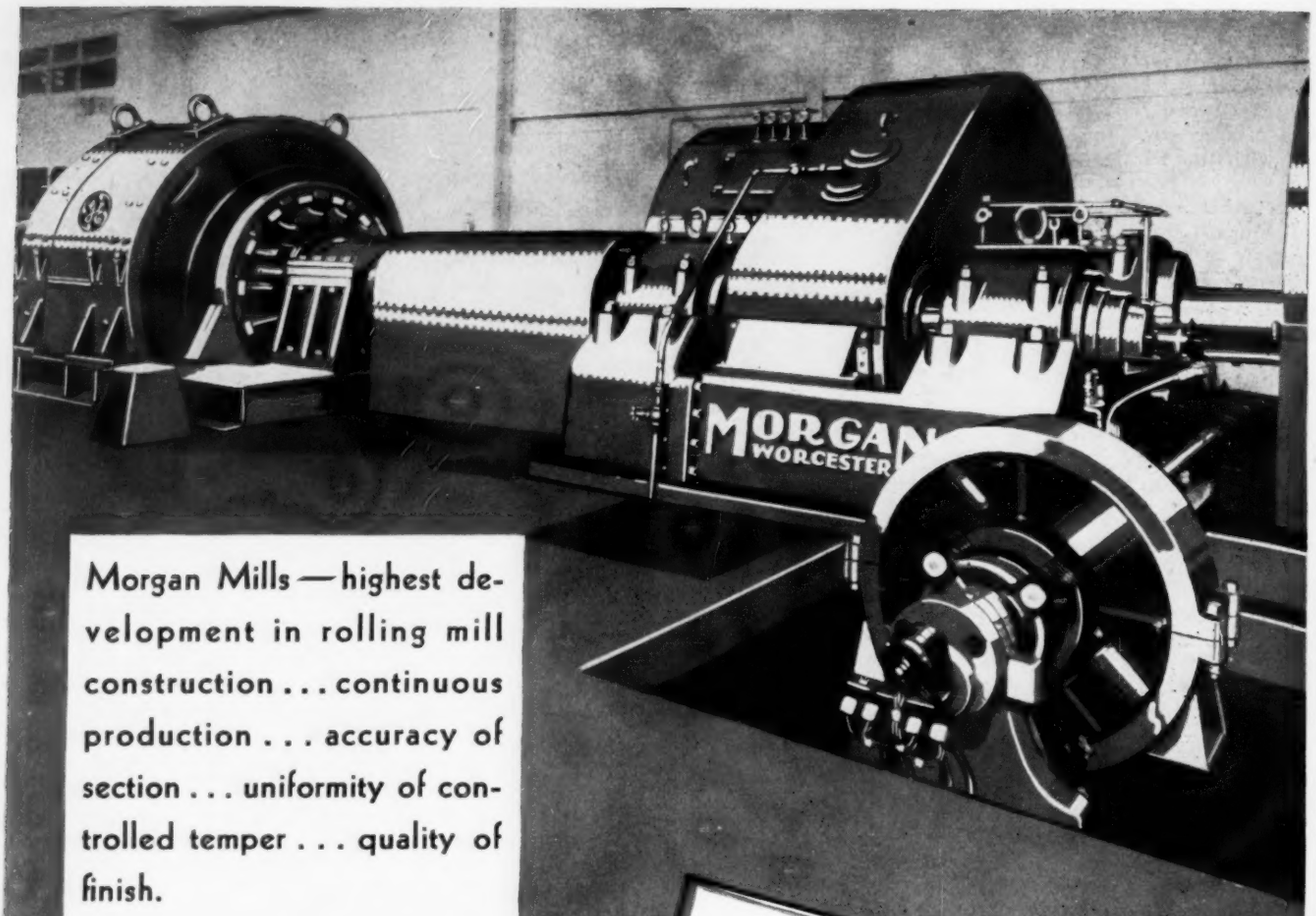


Fig. 15—Girder loading and data on bottom G. Total bottom steel weighs 121.5 pounds per square foot



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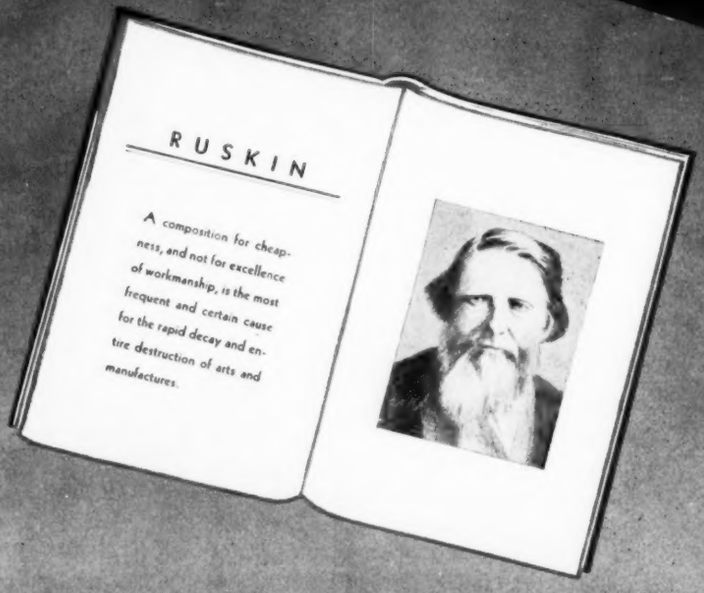
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Table XIV

Details of Approved Cross Beams

Shape	Weight, pounds	Area of web, square inches	Width of flange, inches	Section modulus
*C. beam, 10-inch	42	6.44	8.324	38.08
*C. beam, 10-inch	64	7.91	10.441	61.76
I-beam, 12-inch	50	8.14	5.480	50.27
I-beam, 15-inch	45	6.78	5.540	60.48
I-beam, 15-inch	55	9.72	5.740	67.83

*Carnegie.

9000 pounds for fiber stress and 5000 pounds for shear or web compression is substantiated by the data of Table XII.

Added values for impact are omitted for the reason that any impact from falling bodies is distributed through the mass of bottom refractories and thus divided over large areas with minimized effect. Further, if or when the girders are subject to impact, the furnace has at most only a small partial charge on the hearth and, accordingly, the maximum loading is absent; an ample factor of safety exists, therefore, for any impact that may be occasioned.

Many open-hearth operators frequently desire to increase the tonnage capacity of their furnaces. To accomplish this the usual bath or foreplate line frequently is heightened by building dams on the sills. Increasing the bath depth by this methods adds 430 pounds per square foot to the normal loading for each 12 inches of height thus secured. In designing, the possibilities of this practice should be considered, although if the girders are designed from the foregoing data, there will be an ample factor of safety.

While the primary value of cross beams atop the girders and at right angles thereto probably has been the dissipation of bottom heat before it reaches the girders, their necessity on such a premise has been dispelled by the foregoing temperature findings and by the citation of bottoms that have been in use for years without them and showing no signs of distortion.

Crossbeams are highly suitable for connecting and framing the steel superstructure and for relieving the steel of the bottom pan of the function of serving as the lateral tie, strengthener, and stabilizer of the girders. On account of the relatively close spacing of the girders, cross beams are not required to take any material bending stresses from the bottom loading which they support. The webs, of course, are under considerable compression which should be considered carefully.

For the purpose of conveniently connecting and framing the superstructure, ample width of flanges are desired. Therefore, in the selection of proper cross beams, the area of the web and the maximum width of flange are the characteristics sought, bearing in mind the lightest consistent weight. The beams, as listed in Table XIV, are well suited for this purpose. In the furnace under discussion, no cross beams are used in bottoms D, F, K, L and M, 9-inch Carnegie beams are used in bottom H, 12-inch I-beams in bottom G, and 15-inch I-beams in bottoms A, C, E, I, J, N and O.

Designers and operators of modern furnaces are unanimous, at least so far as the furnaces under discussion are concerned, as to the desirability of steel plate construction for the bottom pan. Examination of Fig. 1 will show steel plate to be used in all bottoms in thicknesses of from ⅝ to 1 inch, except in furnace K, in which channels laid flat and flange to flange are substituted.

The principal function of the plate, in connection with castings in the front and back walls is to form the bottom and ends of a pan into which the refractories of the bottom may be laid. It is incorrect practice to consider the bottom plate as a stiffener of the sub-grillage system. Under this condition, the thickness of plate used is arbitrary. Plate of ¾-inch thickness is favored.

Chills Still Are Included

The inclusion of the chills at the ends of the bottom is archaic with pan bottom furnaces. In the older days when the bottom was built on thick masonry and the bath metal percolated deeply thereinto, they undoubtedly were necessary as a protection against flooding the downtakes. While the source of a considerable heat loss, they probably will continue in use from a favorable prejudice. They usually are constructed of steel shapes and plates, although supports of steel castings may be desirable in some instances.

The design of the open-hearth furnace bottom has not been well

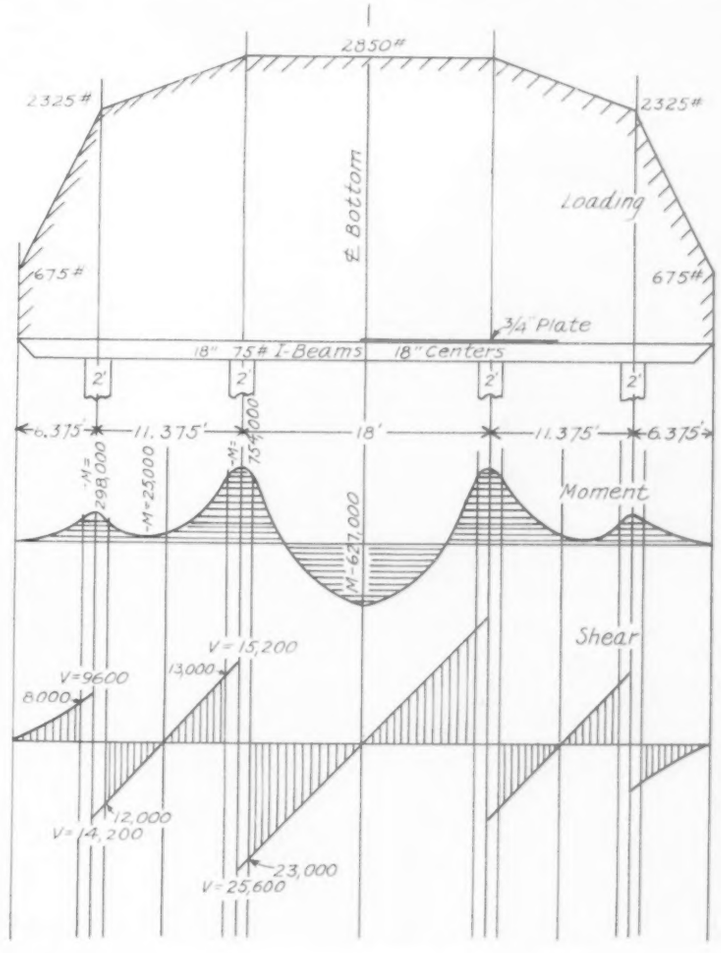


Fig. 16—Girder loading and data on bottom L. Total bottom steel weighs 78.8 pounds per square foot

understood as is evidenced by an analysis of existing bottoms. To improve design, a better understanding of the value and limitations must be had of the materials commercially available and suitable for the purpose, and proper and conservative use of them made.

It is apparent, however, that a well-designed basic bottom incorporating the correct principles will bring about a worthwhile improvement in operation, and to an appreciable degree will tend to lower fuel and general furnace refractory costs.

(To be continued)

To Explain Theory Of Lubrication

IN A PAPER to be presented before annual meeting of the American Society of Mechanical Engineers in New York, Dec. 8, "The Chemical Mechanism of Lubrication" is to be discussed by William F. Parish and Leon Cammen, whose introductory paper on the subject of "Mechanism of Lubrication" presented in June as a preliminary report to the A.S.M.E. lubrication engineering committee has attracted wide attention both here and abroad.

The authors point out that it is mechanical engineers who design lubrication systems, but lubrication as such is essentially a chemical phenomenon, and a vivid light has been thrown on its mechanism by recent progress in physical chemistry generally, and its most novel branch, surface chemistry, in particular.

The paper further explains in terms of electric fields why excessive heat is developed when a dry shaft runs in a dry bearing. It presents a clear picture of what happens in a lubricated bearing and how an oil film which can be rubbed off by a brush of the finger, nevertheless has the power to carry enormous loads at great speeds. It establishes new criteria for the testing of lubricants and lays a practical foundation for future research in the field of manufacture of lubricating oils and their application in modern machinery.

At the meeting at which this paper will be presented, the new Sperry-Cammen tester will be demonstrated, operating up to its top speed of 20,000 revolutions per minute.

Reports on Study Of Embrittlement

COMPRISING the official report of the investigation of the embrittlement of hot-galvanized structural steel, a 109-page booklet has been published by the American Society for Testing Materials containing a comprehensive technical paper of 83 pages by Samuel Epstein, metallurgist, Battelle Memorial institute, Columbus, O., and the 1932 report of the special subcommittee in charge, including a recommended practice for safeguarding against embrittlement of hot-galvanized structural steel products and procedure for detecting embrittlement.

For convenient reference the publication also contains the standard specifications for zinc (hot-galvanized) coatings on structural steel shapes, plates and bars and their products.

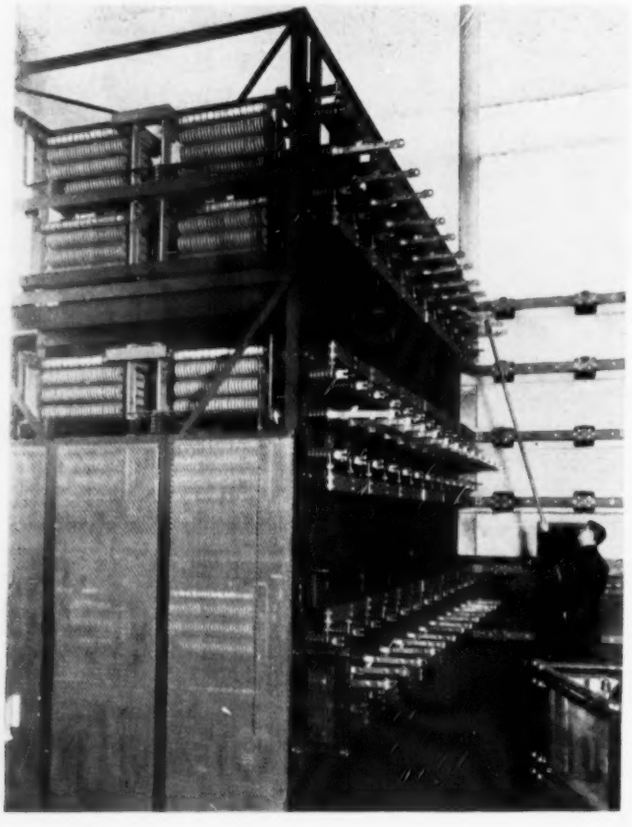
Industries Co-operate

This extensive study of the embrittlement came about in a request from several interested parties for the A.S.T.M. to sponsor a research on embrittlement phenomena which had been of concern to transmission tower engineers and consumers and producers of hot-galvanized steel products. Industries which were desirous of getting a true understanding of the causes and cure contributed several thousand dollars and material to carry on the work.

Battelle Memorial institute was engaged to do this under the general direction of a special subcommittee of committee A-5 on corrosion of iron and steel. On this special committee were representatives of steel manufacturers, fabricators and galvanizers, users and zinc producers.

Over 170 heats of bessemer, duplex and open-hearth steel in the as-rolled, pickled and galvanized conditions, with punched and drilled holes were examined in several thousand tests. The results of these are summarized and given in many charts and tables in the technical paper. In addition, the paper gives a brief history of the problem, outlines the several testing methods used and gathers the results in clear form with careful analysis and interpretation of these.

Copies of the publication, bound in heavy paper cover and illustrated may be obtained from the A.S.T.M. headquarters, 1315 Spruce street, Philadelphia, for $1 each.



THESE 72 special nickel-alloy resistor units are an important part of Westinghouse Electric & Mfg. Co.'s new 60,000 - kilovolt-ampere testing laboratory — one of the world's largest—at East Pittsburgh, Pa. By proper manipulation of series-parallel switches, resistance can be varied from 6.25 to 0.0433 ohms. Maximum current rating is nearly 100,000 amperes for 5 seconds. Unlike ordinary cast-iron grids, nickel-alloy grids are practically non-magnetic and hence give pure resistance which prevents distortion of the testing voltage

Purdue Welding Conference To Be Held in December

Purdue university, Lafayette, Ind., will conduct its eighth annual conference on welding, Dec. 8-9. This conference is sponsored by the engineering extension department and the department of practical mechanics with manufacturers of welding equipment co-operating.

The two-day educational meeting will consist of exhibits, demonstrations, and talks of interest to users of electric or gas welding in manufacturing, maintenance and repair operations. The conference is open to anyone interested in welding and there will be no registration fee. Attendance at the 1931 conference was 250. The program will be available about Dec. 1.

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MATERIAL	Tensile Strength (lb. per sq. in.)	Elongation (in 2 in.)
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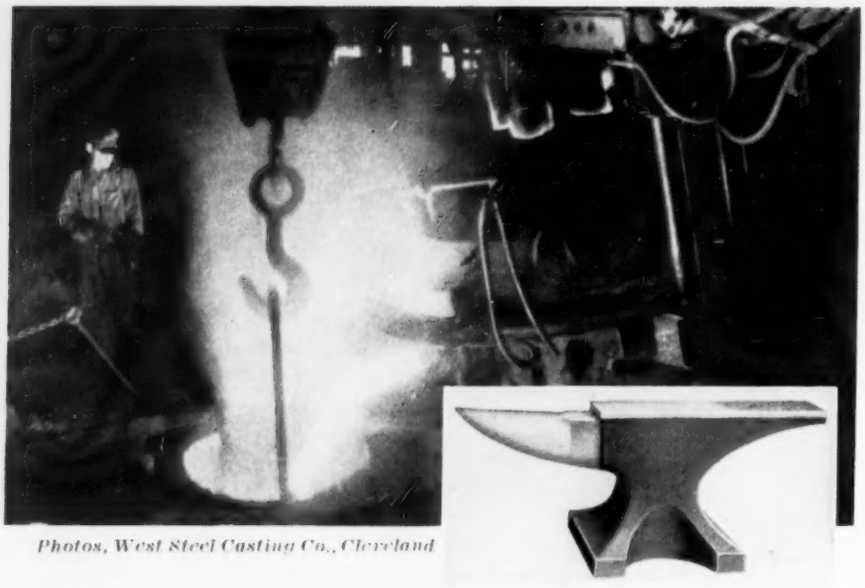

Photos, West Steel Casting Co., Cleveland

Tapping vanadium steel from an electric furnace, and an anvil cast in one piece from such steel. Americans, with improved technique in manufacture, and higher tariff on anvils, are beginning to hope for a better market in this country

Large Uses of Steel In Small Ways

230th Article ◆ Anvils

ANVIL manufacture in the United States, called a "dying industry" by some companies that have withdrawn from it, gives promise of being revived by the tariff. A flood of foreign anvils preceded the tariff revision in 1930, making it difficult for American manufacturers to compete. More than one producer gave up in despair, turning his attention to other products. Some that persisted found the market better in 1931, and are giving employment today to men making anvils who would be idle if it were not for this protection.

Imports Reduced Sharply

Imports of anvils, 5 pounds or more in weight, from Jan. 1 to June 17, 1930, when the tariff was 1⅝ cents per pound, amounted to 328,919 pounds. In the remainder of the year, when the tariff was 3 cents, the imports dropped to 71,168 pounds. For the full calendar year the imports were 400,087 pounds. In 1931, with the duty at 3 cents, the imports fell to 104,621 pounds.

American manufacturers have suffered not only by reason of importations, but also through the increasing use of welding apparatus. Nevertheless, anvils still find considerable use on farms, for repairing equipment; in blacksmith shops; in railroad shops, garages, and structural fabricating plants. One mail order house purchased 160 to 170 tons of anvils in 1930. The amount of steel consumed in this country in the past several years in the manufacture of anvils has averaged about 500 tons annually, according to the best available estimates from manufacturers.

A company in Sweden which claims to have been making anvils for more than 700 years says in its trade publication: "In the old days the anvil body was forged out of soft iron. The face was a welded-on blister steel. After the introduction of the open-hearth process several makers cast the body, but the face still had to be welded on." This was part of its description of its anvils cast in one piece.

American manufacturers for some time have been successfully casting anvils in one piece, using alloy steels from electric furnaces, and heat treating. One such company is making all its anvils of vanadium steel.

Some makers forge the top part of the anvil, and weld it at the waist to the base, which may be a steel or iron casting. A face plate of special steel sometimes is welded to the top of the anvil. Some of the smaller and lower priced anvils are cast entirely from iron, with the face against a chill, to temper it.

The better class of anvils, sold in large numbers, pass scientific tests, but from time immemorable the experienced user has applied his own test by hammering the anvil and noting the ring and the rebound. A clear, bell-like note indicates to him that it is sound, and an elastic rebound, that it has just the right characteristics. This rebound test, used by blacksmiths when they made knight's armor, has been refined to the point where it is used as a scientific measurement of hardness and elasticity.

Nomenclature Persists

Some old and curious names still are used to differentiate various portions of an anvil. The average person can readily see that there is the horn, the face, and the tail, but in between the face and the horn on many anvils there is a step-off, and this is the "blight," useful in certain forming operations. Nearly every anvil has two holes in its face, one square, the other round. The one that is square, to prevent square shanked tools from turning, has been known for ages as the "hardy"; the round one, over which the work is laid for punching, is the "pritchell."

Probably no other implement of industry has found such universal use in the past as the anvil. It has been developed into different shapes in various countries, the national craftsmen preferring their own types. In some countries of Europe two-pointed anvils are used; in some instances, the tail instead of being extended in the same width as the face, is narrowed to half or less the width of the face.

Weights of anvils in this country range from a few pounds to 800 pounds, but the most popular sizes are in the 70 to 450-pound classification, and those used on farms generally are 70 to 100 pounds. So-called anvil blocks, used in power machines, and not included in the estimate of steel consumption for anvils, have been cast as large as 6 feet wide, 7 feeet high, 14 feet long, weighing 115 tons.

Develops Surface Hardening Process

A PROCESS for localized surface hardening, which renders articles so processed resistive to wear, has been developed and commercialized by the Mackintosh-Hemphill Co., Pittsburgh. The process has been trade-named "Wearproof."

The method is applicable in a degree to many types of steels, it is said, and can be applied to gears, pinions, coupling boxes, spindles and similar products which are subjected to extreme wear. These can be taken from stock or service and given the treatment, and the hardness or toughness attained are claimed to be in pro-

portion to the base properties of the metal.

The process was developed primarily for treating the company's special alloy cast steel "MacHemplte" and it is in this application that the maximum degree of hardness and toughness is attained.

No stresses are introduced during the processing and none is present thereafter, it is stated, neither is there distortion requiring subsequent dressing to restore trueness. Penetration is under accurate control and never is permitted to extend so deep as to remove the primitive strength and toughness of the base material. Hardness ranges from 60 to 90 scleroscope, and is regulated according to the service conditions to be withstood. Either cast or machined surfaces may be treated.

Old Mine Rails of Wrought Iron

RAILROAD tracks laid in 1840 and hidden for generations underground have just been brought to light in the Pennsylvania anthracite region. These tracks—the remains of one of the oldest underground railroad systems in the United States—were found in the Thomaston section of Pine Knot colliery, part of the properties of the Philadelphia and Reading Coal and Iron Co. Records of early mining operations fixed the date they were laid.

Despite over 90 years exposure to the ravages of time and severe action of the mine's corrosive sulphur water, the puddled iron shoe rails of the old tracks were in almost perfect condition. Sections of the rails, sent to the laboratories of the Reading Iron Co. for analysis, showed that the puddled iron of which they were made closely resembles the puddled iron being made today at the company's plants in the Schuylkill valley.

Mounted on Hewn Timbers

Gage of the tracks laid in 1840 was 44 inches, the same as the gage used today at the Pine Knot colliery. To make the track, puddled iron shoe rails, ½-inch thick and 2 inches wide, were mounted on heavy, squared hand-hewn timbers. These timbers, in turn, were set on the cross ties. Two types of nails were used: Small nails to fasten the iron shoe to the wooden rail, and large spikes to fasten the wooden track to the cross ties.

Officials of the Reading Iron Co., commenting on the discovery of the tracks, stated that the puddled iron probably was made at Pottsville, Pa. The Reading company itself was established in 1836 and rolled the first iron T-rail at its Pottsville plant. This company still obtains its iron ore from the Richard mine, near Wharton, N. J., which was in operation long before the American Revolution.

Michael Murphy, mine foreman, displays the 90-year old puddled iron rails he discovered

Zinc Institute To Exhibit Galvanized Sheets

The American Zinc institute, 60 East Forty-second street, New York, has made arrangements to exhibit its "seal of quality" heavy-coated galvanized sheets in three of the leading farm shows during the winter months. These include the American Royal Livestock show in Kansas City, Mo., Nov. 12-19; New York State Horticultural show in Rochester, N. Y., Jan. 11-13; and Pennsylvania Farm show in Harrisburg, Pa., Jan. 16-20.

These exhibits will continue to portray the advantages of heavy-coated galvanized steel sheets as an ideal material for roofing and siding for rural and industrial buildings.

Big Shipment of Mercury For Power Generation

What is probably the largest single shipment of mercury ever made arrived in New York last week for the General Electric Co. It is to be used in generating power in the new 20,000-kilowatt mercury turbine just installed at the Kearny station of the Public Service Corp. of New Jersey.

The shipment consisted of 270,000 pounds, and was delivered in 3553 flasks, each containing 76 pounds. It represented only half of the company's needs, the remaining 270,000 pounds will be delivered later and will be used for generating power in the new mercury turbine plant being built in Schenectady. The value of the mercury in the whole order is about $356,000.

The total order represents about 83 per cent of the mercury consumed in the United States in an average year. Institution of mercury vapor generating systems forbodes a new and highly significant factor in the mercury or quicksilver market. The metal does not need to be replaced unless it is lost by accident, since it is condensed after operating the turbine and used again in the generation of power and steam.

Discusses Heat Treatment With Liquid Baths

Various types of salts used for heat treating operations performed in liquid baths and considerable information on the design and operation of salt bath furnaces are discussed at length in a 32-page illustrated booklet, "Houghton on Liquid Baths for the Heat Treatment of Steel," just published by the E. F. Houghton Co., Philadelphia.

Chap. I deals with the advantages of molten salt baths; Chap. II with baths for annealing and hardening; and Chap. III with baths for tempering and drawing. The latter chapter describes the quenching of high-speed steel in a salt bath.

Chap. IV is concerned with furnaces and points out that many times a simple change in furnace design or burner placement will result in a great increase in fuel economy and pot life. These and many other factors which contribute to economy in heat treatment are discussed in detail.

Outlines Requirements for Good Cutting Oils

Considerations in the selection of cutting oils are set forth in No. 5 of a series of monographs on lubrication being published by the Standard Oil Co. of Indiana, 910 South Michigan avenue, Chicago. Naturally, different operations require different lubricants, nevertheless, according to the monograph, the two major requirements which must be met in all are cooling and lubrication.

Listed as prime requisites of a good cutting oil are: Correct viscosity; proper compounding with fixed oil, sulphur or both; stability; freedom from skin irritation; freedom from corrosion to machines, tools or work; and ability to do the work required.

Previous mongraphs issued by the company deal with reducing the cost of lubrication, steam engine lubrication, electric motor lubrication, and steam turbine lubrication.

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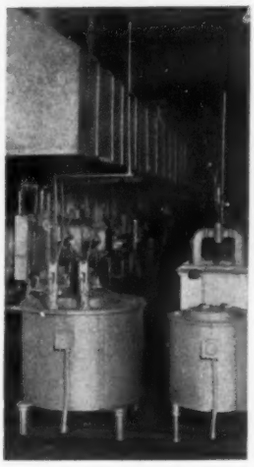
Making the Most of



METHODS AND MATERIALS

ONE of the newest and most unique finishes which has received considerable prominence by its use on several automobiles is pearl essence. The "transparent pigment" furnished to lacquer by adding a small amount of a substance to give it a beautiful iridescent sheen forms the basic property of this finish. This substance is a development resulting from the manufacture of artificial pearls. It is made from the crystalline guanin taken from beneath the scales of certain fish. Chief merits of this finish are depth of color and brilliance. Being of an organic origin there is no danger of toxicity or of corrosion. The finish may be had in a variety of color effects produced by combinations of a colored lacquer background or undercoating and a final coating of pearl essence lacquer through which the color of the undercoat reflects, thereby giving the sensation of depth to the surface.

\$ \$ \$

One automobile manufacturer has developed a heat treated cast iron for valve tappets which is cast in metal molds, softened at 1700 to 1750 degrees Fahr., and cooled in air. The parts are machined and rough ground, then heated from 5 to 30 minutes between 1550 and 1750 degrees Fahr., and quenched in oil. After quenching the tappets are finish ground.

\$ \$ \$

Transmission belting of a new type which is applicable for those machines where endless belting or belting laced with conventional fasteners is impractical has been developed by a large rubber company. The new belt is built up of a greater number of plies of a specially-woven fabric designed primarily to give the characteristics necessary when transmission belting is to be spliced endless right on the machine. The manufacturer also has developed a special cement and tie gum for making the splice. The belting is made only in widths of 6 inches and under.

\$ \$ \$

If a hardened steel in which hardening strains exist is subjected to the chromium plating bath, the effusive evolution of hydrogen causes hydrogen embrittlement in the steel, with a consequent formation of large cracks. This is particularly true in high current densities, as the hydrogen is evolved at a faster rate and the solution at this temperature is incapable of dissolving as large a proportion. Therefore, when hardened steel parts are used, they should be as free as possible from hardening strains. When chromium plating steel gages, far greater success can be obtained by using a softer steel.

\$ \$ \$

Research has revealed that gas savings in excess of 40 per cent have resulted when burning natural gas with preheated air at approximately 1600 degrees Fahr. The practicability of air preheated in excess of this temperature seems doubtful since the economic limit from the standpoint of investment for most installations would be exceeded.

WELDING rod constitutes an important application for 18-8 chrome-nickel steel wire. Welding by gas and particularly by the electric arc has developed to such an extent that it is now common in connection with the fabrication of 18-8 tubes, plates and bars, also in salvaging forgings or castings. For best results, the welding rod should be of essentially the same composition as the parts to be welded. Thus the output is roughly proportional to that of the other forms of chrome-nickel steel produced. Rod of this composition is used with either gas or electric welding. Having no capacity for hardening by the effect of temperature, the welds remain tough and ductile and do not develop the coarse crystalline structure which is likely to be encountered with the straight iron-chromium alloys.

\$ \$ \$

Automobile engine gaskets are being manufactured by a Middle West company by the use of steel instead of the conventional copper. Cadmium plating prevents corrosion of the steel.

\$ \$ \$

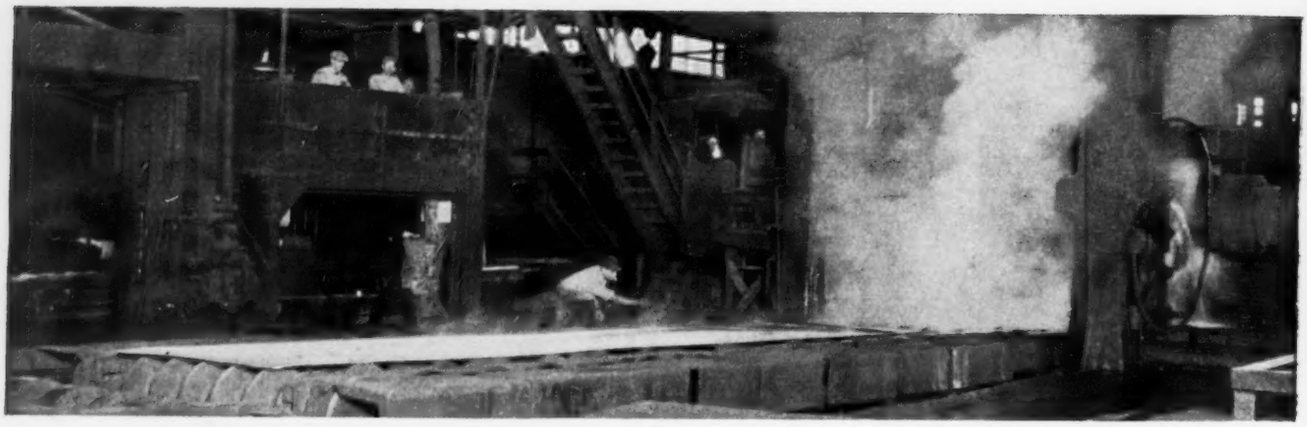
Bearings made from synthetic resin with belting material as a base have been placed on the market recently. Resinoid completely fills and saturates the textile base used and the composite material is subjected to heat and pressure. At approximately one ton pressure per square inch and 340 degrees Fahr. the product sets. Physical characteristics are changed entirely and the bearing is no longer fusible or soluble. It cannot be resoftened by heat, will not absorb water or oil and is resistant to most acids. The bearings are said to be particularly satisfactory in cases where it is easier to apply water as a lubricant than oil, although they will operate satisfactorily with oil if this is desirable.

\$ \$ \$

A new lock nut recently placed on the market obtains its locking action by a wave in the upper thread section of the nut and is said to hold in any position and not be loosened by vibration. The nut may be taken off one bolt and placed on another without lessening its efficiency. It is standard in all its elements and dimensions so that it fits any bolt thread and is made in all standard types and sizes from ¼ to 1½-inch diameter. It is available in any metal.

\$ \$ \$

An English steel manufacturer for some time has been producing name plates made from stainless steel. Now it is introducing instruction plates made of the same material. These plates, suitable for attaching to machinery and other equipment, are available in two styles. In one the characters to be read are polished stainless steel on a background of black lacquer, and in the other the characters are of black lacquer on a polished background.



PROGRESS IN STEELMAKING

CONSTANT pressure instead of gravity flow is the principal utilized by a recently developed viscosity indicator for rolling mills and other machines using pressure lubrication systems. The device, which is connected with the oil-pressure line, indicates when the oil becomes too thin and thus gives warning that a fresh supply is required.

♦ ♦ ♦

Hard facing the wearing surface of valves on high-pressure duplex boiler-feed pumps at a plant in the South increased their life from 500 to 5000 hours operation before it became necessary to rebuild the deposit.

♦ ♦ ♦

Progress in conveyor table design is displayed at a hot strip mill in Ohio where the runout table rollers are driven by 120 motor reducer units. The 16-inch diameter table rollers are accelerated to 1380 feet per minute in 4 seconds without load and brought to rest from 1380 feet per minute in 6 seconds with a load of 90 pounds of strip per roll.

MANGANESE in basic open-hearth heats should not exceed a definite allowable proportion, particularly at the end of a rimming steel heat, according to a consulting metallurgist. This element has a slight solvent power for carbon monoxide, hydrogen and nitrogen and may promote the retention of hydrogen in the bath metal by its solvent power and by quieting the boil. There should be enough to minimize oxidation but not enough to hinder the escape of hydrogen. Up to 0.10 per cent manganese in the bath before final additions are made in the furnace has been found satisfactory for top-poured ingots.

♦ ♦ ♦

Segregation of carbides resulting from improper solidification is the cause of the woody structure in high-speed steel, according to a well-known research engineer, and is a function of the ingot size which influences the cooling rate. The smaller the envelope of carbide the less the woody structure.

ONE part of graphite to five parts water by volume is the correct proportion to use when preparing a wash for spraying ingot molds at a temperature of about 300 degrees Fahr., according to a mold manufacturer.

♦ ♦ ♦

Substantial savings in fuel consumption, labor and dross accumulation in galvanizing steel tubes have been effected at a plant in the Pittsburgh district through the introduction of a new method of firing the galvanizing kettle. Natural gas at 20 pounds pressure is introduced by high-pressure impact burners onto a bed of refractory material installed about 1½ feet below the top of the pot. The products of combustion pass over a low bridge wall, give up their heat to about the upper two-thirds of the kettle and then are led to a common duct to the stack. The gas consumption on this installation is approximately 600 cubic feet per ton of tubes coated.

♦ ♦ ♦

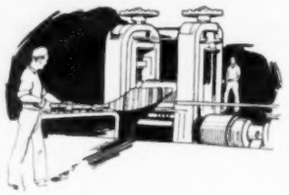
Ease and convenience of operation distinguish a newly designed spectograph which permits effective and accurate spectral analysis of alloy steels, tungsten carbide and hard-surfacing alloys. Plates show exceptional definition and freedom from reflection and fog. All adjustments can be made by the operator at the plate holder end.

♦ ♦ ♦

Surface texture of a steel sheet differs from that at the center of the sheet because of the peculiarly distributed stresses immediately under the rolls, according to a recent investigation. The phenomenon is partly responsible for the fact that the outside layer of a rolled sample has different magnetic properties from the core.

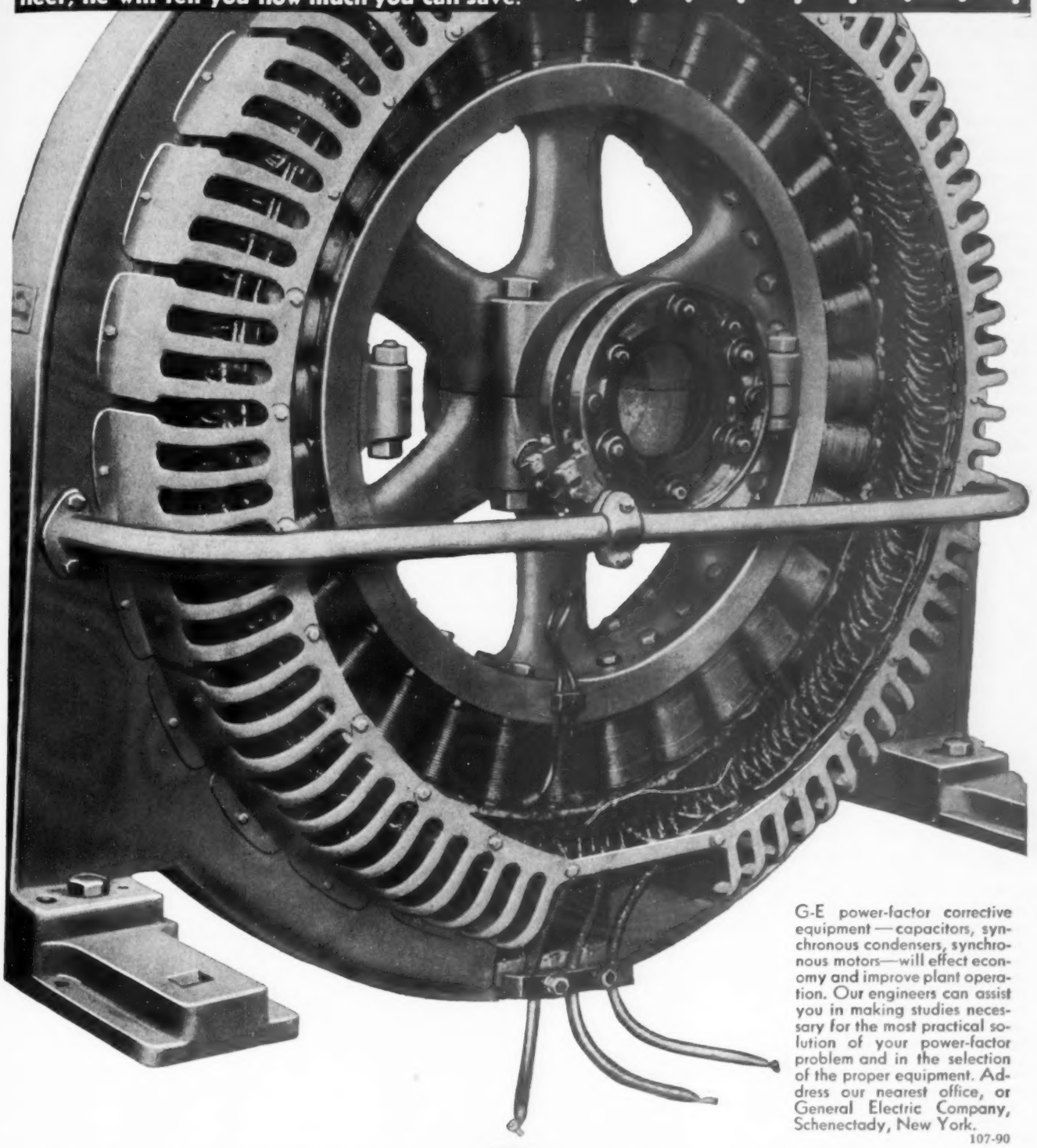
♦ ♦ ♦

Thrustors now are employed to operate the stop on the rear table of a shear serving a 10-inch merchant mill. Merchant shapes coming from the cooling bed pass between the gap of the shear blades and when brought to rest by the thrustor-operated stop positioned at a predetermined distance from the shear, each section is cut to the length specified by the customer.



REDUCTION in scrap loss and labor cost and elimination of uneven annealing and scratching of sheets are afforded by a sheet piler installed at a sheet mill in the Mahoning valley. Sheets coming from the cold mill or roller leveler are conveyed on fabric rollers along two parallel side bars. When the stock touches an adjustible contact plate, a circuit is closed and the side bars immediately move away from each other thus permitting the sheet to be deposited flat on a pile beneath.

HOW MUCH WOULD YOU LIKE TO SAVE ON POWER? G-E synchronous motors, with their inherent high efficiency and ability to improve power-factor, have reduced one power bill 6 per cent, another 3 per cent, another 10 per cent; returns on investments range as high as 32 per cent per year. Discuss your power problems with a G-E sales engineer; he will tell you how much you can save.



G-E power-factor corrective equipment — capacitors, synchronous condensers, synchronous motors—will effect economy and improve plant operation. Our engineers can assist you in making studies necessary for the most practical solution of your power-factor problem and in the selection of the proper equipment. Address our nearest office, or General Electric Company, Schenectady, New York.

107-90

GENERAL ELECTRIC

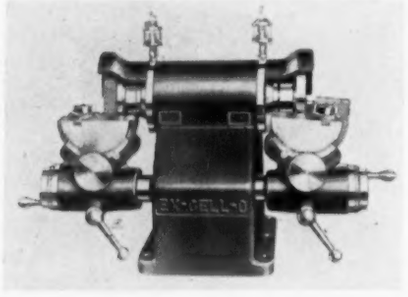
NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Develops Grinding and Lapping Machine

Ex-Cell-O Aircraft & Tool Corp., 1200 Oakman boulevard, Detroit, recently developed a compact unit for grinding and lapping all types of precision tungsten and tantalum carbide tipped boring tools such as general purpose tools, tool bits, etc. At the top of the machine, shown in the accompanying illustration, is mounted an inbuilt balanced motor with a double shaft projection. On one end is a grinding wheel and on the opposite end a lapping disk.

A ring-type grinding wheel mounted on a steel back plate with countersunk holes for holding screws is used. The wheel is 6 inches in diameter, with a 1¾-inch grinding surface. The lapping disk is of the same diameter with a 1¾-inch lapping surface on the front side and a ¾-inch lapping surface on the back of the disk. An adjustable table is provided on each side of the machine.



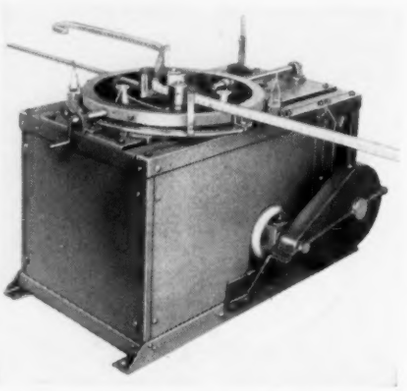
Grinding, lapping unit built by Ex-Cell-O Aircraft & Tool Corp.

Parallel with the face of the wheel there is a slot milled in the face of the table to guide the tool support. The face of the tool support is flat, permitting the tool to be held rigidly by hand during either the grinding or lapping operation.

◆

Bar Bending Machine Is Four-Way Type

Kardong Bros. Inc., Minneapolis, is manufacturing a four-way bender designated model D-2. With this unit, shown herewith, large bars can be bent without having to be turned over to make the reverse second bends. For the 180 degree hook bars, after making the first hook, the bending member is in position to make a second hook by merely switching the resistance roller to the opposite side. Resistance roller plates are adjustable. The same construction is carried through on this machine as in all benders manufactured by the company.



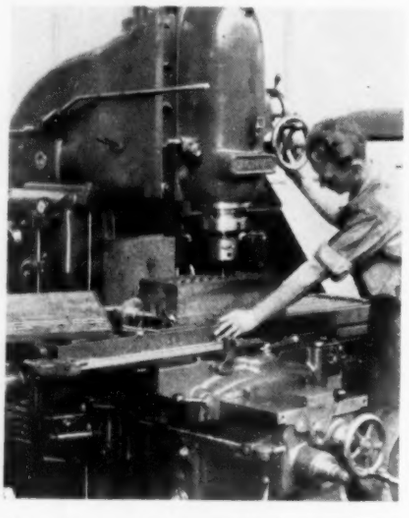
Kardong four-way bar bending machine designed model D-2

◆

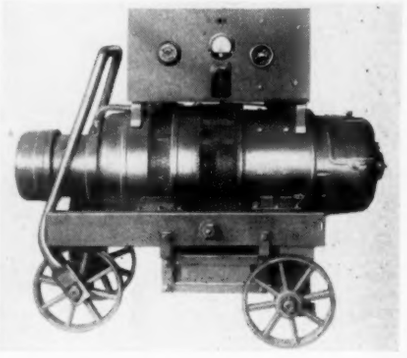
Applies Measuring Device To Milling Machines

Cincinnati Milling Machine Co., Marburg and South streets, Cincinnati, is marketing a new precision measuring device for Cincinnati milling machines. The arrangement, shown in the accompanying illustration, increases the possibility of machine being used for jig boring and die sinking. Use of the equipment is said to eliminate the usual cut and try methods and provides a simple and faster means of measuring accurate center to center distances.

In boring a series of holes, the casting illustrated in the accompanying picture, is so positioned on the table of the machine that the spindle lines up with the first hole. Sufficient measuring rods are put in place until the micrometer head and dial indicator have a zero reading. To accurately locate the next hole the necessary rods are removed to make up the even inches. The micrometer head is employed to take care of the fraction of an inch, corresponding to hole center distance. The table then is moved until the dial indicator again registers zero.



Measuring device applied to Cincinnati milling machine



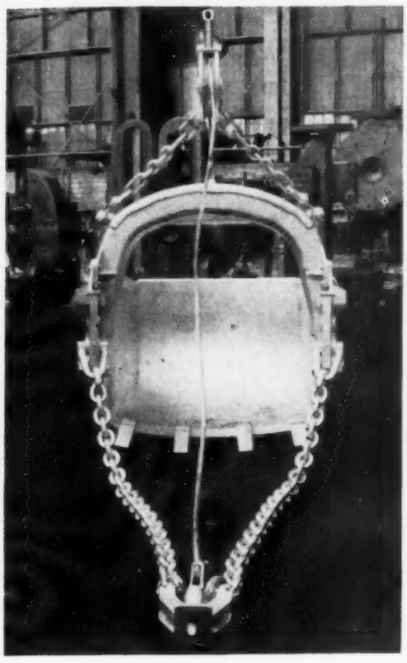
New arc welder manufactured by Imperial Electric Co.

◆

Newly Designed Arc Welder Is Compact Unit

Imperial Electric Co., Akron, O., recently developed a new arc welder. The unit, shown in the illustration directly above, is offered in all conventional types, namely motor drive, gas engine drive, belt drive, and track welder arrangements in sizes from 100 to 800 amperes, and in larger sizes or designs to meet special applications.

Outstanding features are dual control for close regulation of welding heat, separate excitation for quick recovery, reverse polarity switch for convenience in changing leads, and rubber mounting. Special attention is called to the indicating meter and reverse polarity switch. The meter



Williams dragline bucket developed by Wellman Engineering Co.

reads either plus or minus which indicates either straight or reverse polarity, and by pressure on a small button will read either amperes or volts.

The unit has the required high open circuit voltage necessary to maintain the long arc used with the new speed rods. Reactance coil is of the improved type with the result that the high and low points in current flow have been eliminated, it is claimed. Exclusive national distribution of the machines will be handled by Bryant Machinery & Engineering Co., 400 West Madison street, Chicago.

◆

Dragline Bucket Designed For Hard Service

Wellman Engineering Co., Cleveland, is marketing an improved Williams type DL dragline bucket with welded stiffeners extending the full length of the bucket on the outside, interlocked with the bail attaching brackets. This cantilever type of construction prevents pulling-in of the lower front corners. A quick-opening hinged hitch permits the use of a solid one-piece attaching clevis.

Among other distinctive features are the wearing shoes which are forged or welded to the sides of the contacting chain links, for bearing against wearing strips provided on the sides of the bucket. The drag cable socket has two hooks or spurs on the inside for attachment of the rings at the front ends of the main drag chain. Since these rings are attached to the spurs any wear will take place between the casting and the rings and none will occur on the pin. These new buckets are built in sizes ranging from 1¼ to 3 cubic yards rated capacity. Type DL dragline bucket is shown at the left.

◆

Introduces Calculator for Use in the Shop

Blackman-Hill & Co., Inc., 1513 North Broadway, St. Louis, has placed on the market a new shop calculator known as the machinist's slide rule. This pocket-size rule (7 x 2 x ¼ inch) will indicate instantly and accurately the proper speed for work drill or cutter, the proper relative feed per tooth, per revolution or per minute in drilling, milling, turning and boring operations, and also will give in advance the approximate power required for a given speed, feed and cut based on the cubic inches per minute metal removal.

◆

Meters Combine Accuracy And Dependability

Bailey Meter Co., 1010 Ivanhoe road, Cleveland, recently announced the manufacture of a new line of fluid meters for the measurement of steam, water, gases, etc. Three general combinations are available, namely indicating and integrating; recording and integrating, shown herewith; recording, indicating and integrating.

The new units have a number of features which are particularly desirable. Permanent calibration is assured since adequate protection against sudden surges or reversals of flow is provided. Cases have been arranged to permit mounting either on the surface of a wall or panel, or flush on a panel as desired. Auxiliary recorders, such as for temperature, pressure, vacuum or draft may be installed easily in the case to give a record of these factors on the same chart with the rate of flow.

Bailey recording and integrating fluid meter just announced

◆

Builds 200-Ton Hydraulic Metal Forming Press

Farrel-Birmingham Co. Inc., Ansonia, Conn., recently developed a hydraulic metal forming press of 200 tons capacity. The unit, shown herewith, has a 24-inch diameter ram with a 24-inch stroke. Other features include a single cylinder of the double-acting type. Operating medium is oil, which is supplied to the cylinder by the motor driven pump mounted on top of the press. Supply of oil is contained in a welded steel tank which is also mounted on top of the press.

New Farrel-Birmingham hydraulic metal forming press

To meet various working conditions the pressure of the ram is adjustable by means of quick-resetting relief valves. There are no operating valves, all movement being controlled by a pendant switch with three push buttons for "start," "stop" and "reverse." The pendant switch can be swung to various positions about the press.

that's service that gold cannot buy

CAPTAIN Elmer Walling, who pilots our lighter between our Phillipsdale, R. I., and New York Mills, weighed anchor one March afternoon for the trip to New York. During the night a March rain turned to a blizzard, with the wind blowing sixty miles an hour.

Captain Elmer should have put in at New London and waited for clearer weather. Instead, he headed the lighter into the gale with a million pounds of steel aboard. All night he fought his way along Long Island Sound. At times the wind and waves actually stood the boat on end. At 4 p. m. the next afternoon, the *Walling* tied up at our pier in the Harlem River, only three hours late.

When we asked the Captain why he pushed through the storm he answered, "I knew you needed the stuff." That's service that gold cannot buy.

Working with us for many years, the Captain, like all the rest of us, has come to recognize service to the customer as the first duty.

Perhaps you are pretty much like this yourself . . . ready to go through fire and water to please a customer. You understand, then, the type of service which we try to give to every customer who buys in small or large quantities.

We would like to co-operate with you the next time you require any of our products. In the meantime, we will be pleased to answer any inquiry which you may have.

●

WASHBURN WIRE CO., PHILLIPSDALE, R. I.
WASHBURN WIRE CO., INC., NEW YORK CITY

WASHBURN

STEEL

CLEAN, UNIFORM BILLETS—STRIP—RECTANGULAR, ROUND, FLAT RODS
TEMPERED AND UNTEMPERED FLAT AND ROUND HIGH CARBON WIRES

Auto Demands Hold 21 Per Cent Steel Output

Lag in Railroad, Building and Miscellaneous Lines a Heavy Drag—Pre-election Apathy Continues—Scrap Prices Easier—Movement of Pig Iron Good

PRACTICALLY single-handed, automotive requirements for new models now being put into production sustained steelmaking operations at 21 per cent in the week of Nov. 12.

Cleveland mills expanded 1½ points to 35 per cent; Pittsburgh, with some support from tin plate, rose 1 point to 20; Birmingham and Buffalo were a shade stronger at 25 and 22, respectively; Chicago and eastern Pennsylvania were steady at 18 and 13½; Youngstown eased 2½ points to 17.

This maintained steel rate, however, is contrary to the increasing listlessness of the market situation. Rolling of automotive material should hold up for several weeks, and tin plate mills continue to anticipate first quarter shipments, but the shrinkage from other consumers may prove decisive.

An element of strength is derived from the fact that United States Steel Corp. unfilled orders increased Oct. 31 for the third consecutive month despite a higher rate of production. September output of steel ingots, at 17.3 per cent, was a gain of 3 points over August; October at 19 per cent was a rise of almost 2 points; the first half of November has averaged 21 per cent.

Thus far the result of the national election has had no effect on the markets, except the negative one of prolonging the indifference of most buyers. The industry, however, is confident that if the improvement since August is basic it will survive, and that recovery of business is as essential to the new administration as the old, and hence new policies will be tempered.

Expanding automobile assemblies are largely seasonal, and with the exception of Plymouth and Chevrolet, the outpouring of new models is rigidly restricted to dealer and show requirements. But the aggregate of these minimum schedules will lift November considerably over the alltime low of 50,000 units in October, and probably also insures an active December.

Railroad budgets are not sufficiently advanced to release any rail tonnage, and R. F. C. loans are disappointingly slow in conjuring up actual rollings. Norfolk & Western has placed 1500 tons of plates, with some New York Central inquiry for repairs to 13,000 cars near. The St. Louis-Kansas City Short Line has applied for an R. F. C. loan for track improvements requiring 91,360 tons of rails, 4650 tons of angle bars and 2,635,000 tie plates.

Structural steel awards, totaling 8887 tons, again were below the yearly average. Chicago has 10,000 tons active, chiefly bridges and public work, and 9700 tons for the Golden Gate bridge approach is near letting. The 28,000 tons of cable for this bridge has been formally placed. Concrete bar awards, at 1650 tons, also were exceptionally low. Los Angeles has bought 7443 tons of cast iron pipe, chiefly from the United States Pipe & Foundry Co. Bids are in on the 4000-ton pipeline for the Pure Oil Co., Chicago.

Shipments of pig iron continue to outrun those of October, but further buying is conspicuously lacking. In the absence of fresh demand, scrap prices are growing easier. Pittsburgh dealers have cut their asking price for steel scrap 25 cents, to $8.75, with no takers. Italy is inquiring for 5000 to 10,000 tons of scrap for December and January shipment.

No actual increase in production is reported, but inquiry for stainless steel for the brewing industry has been stimulated by the election. Some equipment has been placed at St. Louis.

All composites of the magazine STEEL are unchanged this week—iron and steel at $29.32, finished steel at $47.70, scrap at $6.91. But there is an easier tendency in many products, which the customary year-end apathy of buyers may accentuate. Light rails are definitely off $2, and spiegeleisen $1. On sheets for the automotive industry reductions have been made.

Composite Market Averages

	Nov. 12	Nov. 5	One Month Ago Oct., 1932	Three Months Ago Aug., 1932	One Year Ago Nov., 1931	Ten Years Ago Nov., 1922
Iron and Steel Composite	$29.32	$29.32	$29.32	$29.32	$30.61	$42.08
Finished Steel Composite	47.70	47.70	47.64	47.46	48.17	59.01
Steelworks Scrap Composite	6.91	6.91	6.96	6.06	8.22	17.53

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Nov. 12, 1932	Oct., 1932	Aug. 1932	Nov. 1931
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.76	17.76
Basic, valley	14.00	14.00	14.00	15.00
Basic, eastern, del. eastern Pa.	13.50	13.60	13.85	16.00
No. 2 foundry, del. Pittsburgh	15.76	15.76	15.76	17.76
No. 2 foundry, Chicago	15.50	15.50	15.50	17.00
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	17.75	17.75	17.81	18.00
**No. 2X, Eastern, del. Phila.	14.01	14.16	14.38	16.01
Malleable, valley	14.50	14.50	14.50	16.50
Malleable, Chicago	15.50	15.50	15.50	17.00
Lake Superior charcoal, del. Chi.	23.04	23.04	23.04	25.04
Gray forge, del. Pittsburgh	15.63	15.63	15.63	17.13
Ferromanganese, del. Pittsburgh	73.24	73.24	73.24	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	1.75	2.00	2.00	2.35
Connellsville foundry, ovens	2.75	2.75	2.90	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	Nov. 12, 1932	Oct., 1932	Aug. 1932	Nov. 1931
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.65	1.65
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
Sheets, No. 24, hot ann., Pitts.	2.10	2.10	2.15	2.40
Sheets, No. 24 galvan., Pitts.	2.85	2.80	2.80	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
Sheets, No. 24 hot ann., Chi.	2.25	2.25	2.35	2.55
Sheets, No. 24 galvan., Chi.	2.90	2.90	3.00	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	4.75
Scrap				
Heavy melting steel, Pitts.	$9.25	9.50	8.55	10.25
Heavy melting steel, eastern Pa.	7.25	7.25	6.40	7.95
Heavy melting steel, Chicago	6.00	6.00	5.40	7.65
No. 1 wrought, eastern Pa.	7.25	7.25	6.25	9.50
No. 1 wrought, Chicago	5.25	5.25	4.00	8.00
Rails for rolling, Chicago	8.25	8.00	6.50	10.00

Sheets

Additional Motorcar Orders Are Moderate — Miscellaneous Demands Slightly Below October's

SHEET PRICES, PAGE 45

Pittsburgh—Prices and sales of steel sheets continue of a spotty character. Demand in general appears to be somewhat less than in the same October period, although the deficiency may be made up in a few days. Automotive interests are the most active specifiers, with weakness in autobody and cold-rolled prices. No. 24 hot rolled annealed continue 2.10c to 2.20c. Galvanized are firm at 2.85c. Some inquiry for stainless sheets and strip is expected soon from brewing concerns.

Boston—Sheets are moving slower and prices are irregular. Bids close Nov. 29 on 162 tons of galvanized corrugated sheets for the navy, some of which are due for delivery in the East, including Boston.

New York—Sheet prices are fairly steady for hot rolled and galvanized, but irregular for heavy cold rolled. Sellers see little early improvement in prospect.

Philadelphia — Prices on cold rolled sheets continue irregular, although galvanized and hot rolled products are steady. F. W. Potts & Son Co. have been awarded 12,000 sheets of long terne, 36 x 96 inches, for the Frankford arsenal, this city, with 2800 sheets, 30 x 96 inches, reported placed with the S. Weinstein Supply Co., New York.

Cleveland—Aditional orders in small volume for automotive sheets have developed from Chrysler and Buick, but Chevrolet apparently has concluded its purchases for the present, and no further releases from the latter were in evidence here during the week. Other lines of sheet consumption show a slower trend. On some recent automotive sheet business, 2.55c, base, Pittsburgh, applied. Sellers say not enough business in black sheets has come out recently to develop a trend, and though 2.10c might be done on tonnage, 2.20c is the more general price. Insistence of some buyers for seconds in various grades of sheets is having an unsettling influence.

Cincinnati—The sheet market discloses little change from recent weeks. Mills decline to quote for first quarter at present levels.

Chicago—Sheet demand is fairly steady. Improvement in automotive orders is confined to a few interests, and involves only small lots. Mill operations are slightly lower, at less than 20 per cent. Producers usually name 2.20c, base, for hot rolled annealed sheets, and 2.95c for galvanized.

St. Louis—New orders and specifications from the automotive industry are slightly better, but the outlet through building and railroad channels continues narrow. Miscellaneous requirements still are the backbone of demand.

Birmingham, Ala.—Production has eased off, but there is evidence of more business shortly.

Urges New Freight Rates

A complaint has been filed with the interstate commerce commission by the Missouri Valley Bridge & Iron Co., Leavenworth, Kans., against the Chicago, St. Paul, Minneapolis & Omaha railroad against the rates on rolled steel sections from Chicago to Leavenworth.

Protests Rate on Shapes

Complaint has been filed with the interstate commerce commission by the Kansas City Structural Steel Co., Kansas City, Mo., against the Atchison, Topeka & Santa Fe railroad against rates on structural steel from points in Pennsylvania to Kansas City.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, delivered	1.70c
New York, delivered	1.90c
Birmingham, base	1.70c
Philadelphia, delivered	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, delivered	2.01c
New York, delivered	2.05c
St. Louis, delivered	2.04c
Birmingham, base	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.10c to 2.20c
Gary, Ind. Harbor, base	2.20c to 2.30c
Chicago, delivered	2.25c to 2.35c
New York, delivered	2.45c to 2.55c
Philadelphia, del.	2.41c to 2.51c
Birmingham, base	2.35c
St. Louis, delivered	2.54c
San Francisco, c.i.f.	2.85c
Detroit, delivered	2.28½c

GALVANIZED NO. 24

Pittsburgh, base	2.85c
Gary, Ind. Harbor, base	2.95c
Chicago, delivered	3.00c
*Philadelphia, delivered	3.16c
*New York, delivered	3.20c
Birmingham, base	3.00c
St. Louis, delivered	3.19c
San Francisco, c.i.f.	3.50c

AUTOBODY NO. 20

*Pittsburgh, base	2.55c to 2.65c

FURNITURE

*Pittsburgh, No. 10 heavy	2.40c to 2.50c
*Pittsburgh, No. 20 light	2.90c to 3.00c

TIN MILL BLACK NO. 28

*Pittsburgh, base	2.30c
*Gary, base	2.40c
*St. Louis, delivered	2.67½c

HEAVY COLD ROLLED NO. 10

*Pittsburgh, base	2.00c
*Gary, Ind. Harbor, base	2.10c
*Chicago, delivered	2.15c
*Philadelphia, delivered	2.31c
*New York, delivered	2.35c

COLD ROLLED NO. 20

*Pittsburgh, base	2.50c
*Gary, Ind. Harbor, base	2.60c
*Chicago, delivered	2.65c
*Philadelphia, delivered	2.81c
*New York, delivered	2.85c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing (9-11 gage)	$55.00
(12½ gage and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, delivered	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala. base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.94c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, delivered	1.75c
New York, delivered	1.87c
Boston, delivered	2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.35c

IRON

Chicago, base	1.60c to 1.65c
New York, delivered	1.85c to 1.90c
Philadelphia, delivered	1.81c to 1.86c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chicago, billet	1.50c to 1.60c
Chicago, rail steel	1.30c
Philadelphia, cut lengths	1.86c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

Base, Pittsburgh

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.75
Tin plate, coke base, stock	3.85
Long ternes, 24, unassorted	2.80

Gary, Ind., base 10 cents higher

Alloy Steel

Hot Rolled—F.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O.

Hot rolled; base 2.45c to 2.65c, mills; differentials to various consumers

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo. 1.25-1.75 Ni.	1.05
2000	0.25	5100 .80 - 1.10	
2100	0.55	Cr.	0.45
2300	1.50	5100 Cr.	
2500	2.25	spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.30	Cr., Ni., Van.	1.50
3400	3.20	Carbon van	0.95
4100 .15 to .25 Mo.	0.50	9250 (flats)	0.25
		9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide Pitts.	1.45c
Do., Chicago	1.55c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. New York	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts-Cleve	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 5 off
Washers, c.l., Pitts. dist.	$6.50 to 6.75 off
Do., Chicago district	7.00 to 7.50 off

Rails, Track Material

Standard rails, mill	$40.00
Relay rails, Pitts, 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
Light rails, 25-45, mills	$30.00
*Light rails, Chicago	$32.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.40c
Spikes, boat, barge, Pitts.	2.65c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
Tie plates, Pitts.	$35.00
Tie plates, Chicago	$35.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅝ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in. ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Steel sheet piling, Pitts.	1.90c

Bars

Automotive Needs Give Only Aid to Market—Alloy Bars Show Most Activity

BAR PRICES, PAGE 45

Chicago—Except for a small increase in soft steel bar demand from the automotive industry, orders generally are in unchanged volume. Automotive requirements are spotty and still light. Farm implement manufacturers continue to mark time and have made little change in operations, which are particularly light for this period. Railroad specifications also lack improvement. Bar mills are receiving less support from reinforcing bar requirements, although bar mill operations generally have been fairly steady. Prices are unchanged.

New York—Trading in steel bars continues to lag behind last month, according to leading sellers here. However, possibility of railroad buying in the near future is encouraging to producers. Commercial steel bars are 1.60c, Pittsburgh.

Philadelphia — Commercial steel bar business continues to lag. Jobbers are specifying little and manufacturing requirements, so profoundly dull during the early part of this month, have failed to pick up. The price is 1.60c, Pittsburgh. Common iron bars are 1.50c to 1.55c, Pittsburgh.

Pittsburgh — Several corporation and independent bar mills are busier than a month ago, rolling automotive orders from four Detroit accounts. This business has been largely in alloy bar stock and has carried considerable material for partsmakers. However, considerable of this tonnage represents rolling and shipment of orders taken two to three weeks ago and the past week has seen no new blanket bar specifications. Alloy bars are holding at 2.65c, with automotive and other large accounts getting their usual concession. Carbon bars are nominally 1.60c, Pittsburgh. Several railroads have been taking small tonnages of bar shapes in their car repair programs. Several orders for spring steel have been placed the past week.

Cleveland—Steel bar manufacturers expect a week or two to elapse before a trend in demand emerges from the dull spot in business noted just prior to and following election. None of the large consumers, except automotive interests, placed more than routine necessities. Some fairly good orders were received here for truck and bus rim stock and larger orders from some of the automobile companies getting into production on new models were placed through Detroit. Commercial steel bars are 1.65c, base, Cleveland.

Tin Plate Mills Busier; Rolling for 1933

Tin Plate Prices, Page 45

Pittsburgh—At 45 per cent of capacity, the average of tin mill operations is improved slightly over that of a week ago. Tin mills are continuing to take specifications for early 1933 shipment, and in many instances are producing largely for such delivery. In the absence of an expected price announcement, the market continues unchanged at $4.75, per base box.

Cold-Finished Orders Better than in October

Cold Finished Prices, Page 45

Pittsburgh — Cold-finished bar mills are working on automotive orders and a slight backlog of miscellaneous specifications. Orders of November have been slightly better than the same October period. The base price of 1.70c presents little discussion. Differentials apply for quantity.

Plates

Railroad Requirements Dominate Eastern Field—Tank Work Is More Promising in West

PLATE PRICES, PAGE 45

Chicago—Plate fabricators are figuring on a fair volume of tank work. A large amount of replacement business in the oil industry is accumulating, and although orders recently have been small, prospects for the future are regarded as favorable. Some business in water tank construction for municipalities is expected to materialize through aid from the Reconstruction Finance Corp.

Recent placements of fabricated plate work have been light, and orders for railroad equipment work also are small.

Philadelphia—Approximately 1300 tons of plates for car repairs have been awarded the Wheeling Steel Corp. by the Norfolk & Western, which also purchased a small tonnage of shapes from the Carnegie Steel Co. The Reading Co. is expected to buy 700 to 800 tons more plates soon. It is possible that the Pennsylvania railroad has not as yet closed definitely on all of its requirements for the 1285 freight cars to be built in its own shops.

Pittsburgh—On the average run of plate mill specifications, 1.60c Pittsburgh, is still applied. Pittsburgh boat builders are figuring three oil barges for the Chicago engineers, bids to go in Nov. 16, requiring a total of 430 tons of plain plate material.

A nearby manufacturer has taken about 1000 tons of ¼-inch plates for the Norfolk & Western. The Homestead, Pa., plate mill was running for a period last week on a fair size grouping of orders. A new outlet for plates may develop soon if plans of a Pittsburgh district car shop to produce pressed plate specialties develops.

Boston—Boiler shops are inactive and miscellaneous plate buying is off slightly. A small tonnage for the Boston navy yard has been placed. Prices are generally firm at 1.70c, Coatesville.

Cleveland—On the small, miscellaneous run of orders, constituting the bulk of plate business at present, 1.60c, base, Pittsburgh, is firm. Sales were a little slower during the past week, none of the major consuming lines being active in the district market.

Contracts Placed

450 tons, navy, Boston, Brooklyn, N. Y., and Philadelphia, to Worth Steel Co., Claymont, Del., bids Oct. 25, schedule 8878. Material is for four destroyers.

178 tons, two derrick boats, Memphis, Tenn., to Midland Barge Co., Midland, Pa.

178 tons, navy, Boston, Brooklyn, N. Y., and Philadelphia, to Worth Steel Co., Claymont, Del.; bids Oct. 25, schedule 8876. Material is for four destroyers.

100 tons, United States engineer, St. Louis, and navy, Mare Island, Calif., to Central Iron & Steel Co., Harrisburg, Pa.

105 tons, steel oil tank, navy, delivery on east coast for trans-shipment to

Cavite, P. I., to Chicago Bridge & Iron Works, Chicago; bids Oct. 11.

Contracts Pending

430 tons, three oil barges, 30 x 120 feet, for Chicago engineers; bids Nov. 16.
240 tons, repairs, East river bridges, New York; bids in.
200 tons, surge tank, Newark, N. J.; bids Nov. 28.

Wire Market Holds to Steady Rate; Gains Slight

Wire Prices, Page 45

Chicago—Specifications for wire products are fairly well maintained, with occasional slight gains noted in demand from manufacturers' wire consumers. Automotive orders are spotty and slow to increase, while shipments to agricultural districts continue quiet. No marked improvement in the latter is anticipated over coming weeks. Prices are holding well at $2 in carload lots of wire nails, and 2.25c for plain wire.

Worcester, Mass.—Wire prices are firm and unchanged, with plain bright wire at 2.30c. While increase in buying is generally slower except for a few specialties, gains of recent weeks have generally been well maintained. Collyer Insulated Wire Co., Pawtucket, R. I., has booked flame-proof cable for Brooklyn and Philadelphia navy yards at $2578, while several additional miscellaneous wire rope orders for the government have gone to a New Haven, Conn., mill.

Philadelphia—In the absence of any tonnage that would provide a test, prices on wire products appear steady. Nails are $1.95, Pittsburgh, and plain bright wire, 2.20c, Pittsburgh. Jobbers are specifying lightly.

Pittsburgh — On the continued light volume of wire and nail orders, listed prices appear fairly well observed. Minimum price of $1.95 on nails in carload lots is less frequent than less-carload and pool car nail prices. Both plain and spring wire are unchanged at 2.20c and 3.20c, respectively.

Cleveland—Approaching inventory season appears to be slowing up the movement of wire and wire products to jobbers and little change is noted in direct manufacturers' demand. Prices are unchanged.

Vicksburg, Miss.—Bids close Nov. 15 on 200 tons of steel wire strand for the United States engineer here. Republic Steel Corp., Upson Nut division, Cleveland, has been awarded 750,000 noncorrosive wire rope clips at $32,962, delivered, bids Oct. 18.

Railroads

Steel Needs for Car Work Slow To Make Mill Tonnage—Placing of Rails Promises Little

TRACK MATERIAL PRICES, PAGE 45

Pittsburgh—The Edgar Thomson rail mill was active only last week, production having ceased Nov. 12. Inasmuch as there has been no new rail buying, prospects of another rolling are not immediate. Several railroads should be compiling 1933 budgets and consequently issue inquiries for rails and fastenings soon but at present there is no inquiry from any roads for rails, tie plates or spikes. Scattered car repair programs are the extent of railroad steel activity.

Norfolk & Western railroad has bought about 1500 tons of ¼-inch side and top plates for car repair work, the order being reported to a Pittsburgh district mill. The Reading Co. has about completed purchase of steel products for its car repair work but this tonnage was awarded largely to mills in the East. Prices on railroad steel products are nominal in view of absence of buying, with spikes 2.40c, tie plates $35 a ton and light rails $30 a ton.

The Pennsylvania railroad began work Nov. 7, on the fabrication of 1285 box cars. According to a new design, 360 will be steel cars, longer, wider and higher than those now in use, to be used for the transportation of automobiles, and the remaining 925 will be of standard construction. A rearrangement of schedules will transfer part of the building work to Pennsylvania railroad shops at Mahoningtown, Pa., near New Castle, Pa.

Cleveland—Railroads are not getting loans they anticipated from the Reconstruction Finance Corp. and this is ascribed as the reason for the fact recent purchases have not been more extensive. Erie and Nickel Plate indicate that no rail buying will be done until spring. Chesapeake & Ohio took 56,000 tons of rails last year for laying in 1932; laid 10 per cent of them, and recently arranged to lay an additional 35 per cent. Track fastenings for this additional work, purchased at the time the rails were bought, have been released. Other railroad requirements are limited to routine repairs.

Chicago—Rail orders are absent but releases against contracts recently have been slightly heavier. This tonnage is sufficient to permit only limited operations of one rail mill in the district, while orders from railroads for other steel products and equipment are quiet and unchanged. Only a few items are pending in the freight car market, and car builders see little prospect of any substantial business in the immediate future. Car repair work is developing only a small tonnage of various steel products. Chicago Great Western railroad has yet to place orders for 200 steel hopper cars, on which it took bids recently.

Rail Orders Pending

St. Louis-Kansas City Short Line railroad, 91,360 tons of 120-pound rails, 4600 tons angle bars, 2,635,900 tie plates. R. F. C. loan of $35,000,000 being sought.

Warehouse Buying Shows Only Small Variation

Warehouse Prices, Page 63

New York—Warehouse volume is at about the rate of last month, a few jobbers noting a slight improvement. Prices are mixed and easy, notably on galvanized sheets. Buying is well diversified but in small lots. Foreign steel continues to have an adverse influence.

Philadelphia — Trading is light, and prices are unchanged.

Pittsburgh—Movement of steel products out of stock has been better the past week than in any week in October. Demand seems well distributed and no particular steel product is featuring sales. All prices are unchanged.

Cincinnati—Warehouse trade this month has been comparable with October. Jobbers are without indicators of the trend for the latter part of the month. Prices are unchanged.

Chicago—Warehouse sales hold fairly well to the October rate, although some decrease is expected. Prices are unchanged.

St. Louis—Volume of iron and steel warehouse business shows little change as contrasted with the closing weeks of October. Demand is spotty, and the usually large consumers, such as the oil, railroad, automotive and building industries, have not increased takings.

Structural Shapes

Awards Show Slight Increase — Large Tonnages Still Pending—2370 Tons Placed for River Locks in West Virginia—28,000 Tons of Cable Purchased

STRUCTURAL SHAPE PRICES, PAGE 45

Chicago—Nearly 10,000 tons of structural shapes are pending for several projects to be awarded over the next several weeks. This includes 3800 tons for three Illinois bridges, 1000 tons for a federal building at Omaha; 2000 tons, including 1400 tons of piling, for Mississippi river lock No. 5 near Fountain City, Wis., and 1500 tons for a bridge at Kansas City, Mo. Fabricators, however, have but few new projects which to figure. Recent awards have been light, consisting principally of highway bridges.

Boston—Structural awards include 350 tons for Massachusetts post offices. Fresh inquiry is light. Fabricated steel prices are easy.

New York—Structural awards are led by 1000 tons for a state hospital at Brentwood, N. Y., the aggregate volume being small. Pending tonnage has slowed up, although for bridges and viaduct work in New York district more than 6000 tons are active. Prices on fabricated material continue irregular.

Philadelphia—Public work continues the only outlet of importance in the local structural market, several large projects still pending. Shapes are holding at 1.70c, nearest mill.

Buffalo—Engineers for the Reconstruction Finance Corp., who considered the plans for two bridges over the Niagara river have decided against a loan of $5,000,000 sought for the work, it is understood. About 15,000 tons of structural shapes and reinforcing bars would have been required.

Pittsburgh — New structural inquiries are not improving in volume, and orders entered for rolling by district mills are less than a few weeks ago. About 1000 tons of steel sheet piling may be used in work at Muscle Shoals, Ala.

Cleveland—Some contractors figuring the Cleveland postoffice are asking more time, beyond Nov. 15, due to alterations in the plans, which, however, do not change the shape tonnage. Certain fabricators are figuring on 7500 tons of shapes for the job, though this may run up, as some especially heavy beams are required. Special steels also are specified for some parts. Recent state bridge awards call for approximately 1400 tons of shapes, fabricators expecting steel to be placed shortly.

Cincinnati — Pittsburgh Testing Laboratory, Pittsburgh, will inspect approximately 850 tons of structural steel for the Lexington, Ky., post office, fabricated by the Fort Pitt Bridge Works, at 38.00c a ton. Inspection of 1200 tons for the Chattanooga post office, fabricated by Virginia Bridge & Iron Works, will be by James C. Dempsey, Philadelphia, at 29.00c a ton.

H. C. Nutting Co., Cincinnati, is low on the inspection of 4200 tons of structural steel for the Cincinnati post office with a bid of 9.75c a ton.

San Francisco—A contract for 28,000 tons of steel cable for the Golden Gate bridge here has been formally awarded to the John A. Roebling's Sons Co. Trenton, N. J. The general contract for erecting 9700 tons of structural shapes for the approaches has been placed with Bridge Builders Inc., San Francisco, and steel will be purchased shortly. As noted in STEEL, Oct. 24, 75,000 tons of shapes for the main span were awarded to McClintic-Marshall Corp., Bethlehem, Pa. Other contracts recently closed include one for $154,470 worth of electrical equipment, with the Alta Electric Co., San Francisco.

Contracts Placed

2370 tons, various steel products, lock and dam, Kanawha river, London, W. Va., to Dravo Contracting Co., Neville Island, Pittsburgh.

1100 tons, state bridge, Tuolumne river near Modesto, Calif., to Moore Dry Dock Co., Oakland, Calif.

1000 tons, Brentwood state hospital buildings, New York, to Lehigh Structural Steel Co., Allentown, Pa.; Cauldwell-Wingate Co., New York, general contractor.

675 tons, state bridges, Ulster county, New York, to Lackawanna Steel Construction Corp., Buffalo; M. A. Gammino Construction Co., Providence, R. I., general contract. Third bridge, same county, 285 tons, awarded same fabricator by De Lucca Bros., contractors, as previously reported.

540 tons, hospital buildings, Oneonta, N. Y., to Ingalls Iron Works, Verona, Pa.; through LaSala, Mason Corp., New York.

535 tons, hospital buildings, Orangeburg, N. Y.; to Bethlehem Fabricators Inc., Bethlehem, Pa.; through Longacre Engineering & Construction Co. Inc., New York.

350 tons, state bridge, Johnston county, Oklahoma, to Muskogee Iron Works, Muskogee, Okla.

310 tons, Sylvania Industrial Corp. plant, Fredericksburg, Va., to McClintic-Marshall Corp., Bethlehem, Pa.

300 tons, warehouse, Easton, Pa., reported placed with Bethlehem Fabricators Inc., Bethlehem, Pa.

268 tons, highway bridge over Racoon creek, Beaver county, Pennsylvania, to Fort Pitt Bridge Works, Pittsburgh, through Mike Marello, Pittsburgh, general contractor.

260 tons, hospital, Huntington, N. Y., to George A. Just Co., Long Island City, N. Y.; through William Kennedy Construction Co., New York.

250 tons, angles, channels and I-beams, navy, Boston, Brooklyn, N. Y., and Philadelphia; divided among Carnegie Steel Co. and Jones & Laughlin Steel Corp., Pittsburgh; Bethlehem Steel Co., Bethlehem, Pa., and John T. Hill, Baltimore; bids Oct. 25, schedule 8877. Material for four destroyers.

234 tons, highway bridge, Bieber, Calif., to Moore Dry Dock Co., Oakland, Calif.

160 tons, bulkheads, for Pittsburgh district engineers, to Independent Bridge Co., Pittsburgh.

150 tons, estimated, lookout towers, department of agriculture, to Chicago Aeromotor Co.; $12,413.50, f.o.b. Chicago.

145 tons, postoffice addition, Brockton, Mass., to Shippers' Car Line Corp., Milton, Pa.; V. & M. Construction Co., Yonkers, N. Y., general contractor.

140 tons, miscellaneous state bridge work, Pennsylvania, to Morris Wheeler & Co., Philadelphia.

100 tons, Continental Diamond Fibre Co. factory building, Marshaltown, Del., to McClintic-Marshall Corp., Bethlehem, Pa.

Awards Compared

	Tons
Awards, week ended Nov. 12	8,887
Awards week, ended Nov. 5	8,201
Awards, week ended Oct. 29	11,657
Awards, this week in 1931	16,055
Av. weekly awards, 1931	34,236
Av. weekly awards, 1932	16,273
Av. weekly awards, Oct.	29,641
Awards, to date, 1931	1,650,728
Awards, to date, 1932	748,578

Contracts Pending

9700 tons, approach spans, Golden Gate bridge, San Francisco. General contract awarded to Bridge Builders Inc., San Francisco. Subcontract for shapes to be placed shortly. John A. Roebling's Sons Co., Trenton, N. J., awarded 28,000 tons of cable.

7200 tons, estimated, steel girders for St. Louis-Kansas City Short Line railroad. Application filed for $35,-

000,000 loan from Reconstruction Finance Corp., for construction work.
2035 tons, including 1400 tons of piling, lock No. 5, Mississippi river, Fountain City, Wis.; bids Nov. 29.
2000 tons, state hospital buildings, Kings Park, N. Y.
1800 tons, bridge, Ottawa, Ill.; Wisconsin Bridge & Iron Co., Milwaukee, low.
1500 tons, Seventh street bridge, Kansas City, Mo.; new bids Nov. 23.
1000 tons, federal building, Omaha, Nebr.; general contract to J. P. Cullen & Sons, Janesville, Wis.
1000 tons, viaduct, Staten Island, N. Y.; Edward Kloberg Inc., New York, low.
1000 tons, steel sheet piling, Muscle Shoals, Ala.; bids Nov. 18.
1000 tons, bridge, Joliet, Ill.; Mississippi Valley Structural Steel Co., Decatur, Ill., low.
910 tons, including 460 tons of steel sheet piling and 450 tons of metal work, lock and dam No. 5, Green river, Ky.; bids Dec. 7, United States engineer, Louisville, Ky.
735 tons, psycopathic ward, General hospital, San Francisco; bids Nov. 16.
675 tons, highway bridges, Nebraska.
580 tons, three Pennsylvania state bridges; bids Dec. 2.
400 tons, highway bridges, Oklahoma.
300 tons, shapes and bars, infantry battalion barracks, Plattsburgh, N. Y.; bids Dec. 7.
225 tons, piling, three projects in New Jersey, for Central Railroad of New Jersey.
223 tons, widening causeway in Yolo county, California; general contract placed.
170 tons, postoffice, Sarasota, Fla.; bids Dec. 2.
120 tons, postoffice, Vallejo, Calif.; bids Nov. 10.
115 tons, steel sheet piling and miscellaneous steel, lock and dam No. 5, Green river near Bowling Greene, Ky.; bids Dec. 7 by Louisville, Ky., engineers.
250 tons, postoffice, Daytona Beach, Fla.; Otto Misch Co., Detroit, low.
100 tons, shapes and bars, postoffice, Stillwater, Okla.; W. S. Bellows Construction Co., Oklahoma City, low.
Unstated tonnage, for Vicksburg Bridge & Tennessee Co., Vicksburg, Miss. Application filed for $4,000,000 loan from Reconstruction Finance Corp., to replace wood bridge with steel.
Unstated tonnage, about 80 tons, Panama; Bethlehem Steel Export Co., low bids Nov. 3, $2584.25.

Barge Steel to Cincinnati

Pittsburgh—Seven barges of tin plate and other steel products were delivered to Cincinnati recently by the steamer STEEL CITY from the Pittsburgh district. A part is for reshipment to St. Louis and New Orleans.

Pig Iron Leads Imports

Philadelphia—The imports received at this port during the week ended Nov. 5 included 296 tons pig iron, British India, and 36 tons pig iron, Norway.

Concrete Bars

Volume Is Lighter—Seasonal Lull Developing in Bridge and Road Work—5000 Tons To Be Awarded Shortly for Golden Gate Bridge—Prices Firmer in Some Districts

REINFORCING BAR PRICES, PAGE 45

Chicago—Reinforcing bar awards and inquiries have declined. Bids close Nov. 29 on 360 tons for a Mississippi river dam at Fountain City, Wis. About 600 tons remain to be placed for two similar projects at Alma, Wis., and Canton, Mo. A large portion of the 2000 tons involved in Illinois highway work is not expected to be placed until next spring.

Boston—Reinforcing steel demand has declined, and is mainly for bridges and highways. A Portland, Me., distributor is supplying bars for the University of Maine gymnasium, Orono, Me. Foreign steel is offered freely in this territory.

New York—With few exceptions, billet and rail steel bar prices are fairly firm. Rail steel is firmer at 1.35c, Pittsburgh and Buffalo, with 1.78c applying to delivery to the job in most instances. Demand for reinforcing steel has subsided, although a substantial volume is pending.

Philadelphia—Federal work dominates demand for reinforcing bars, though there has been no action as yet on the 1500 tons of bars and mesh for the Thirtieth street postoffice here, or on substantial tonnages for the local customs house and the proposed naval hospital. Small road work comprises the bulk of remaining demand.

Pittsburgh—Several large eastern projects are being figured by interests here. Prices on reinforcing bars continue nominal.

Cleveland—Concrete bar prices have shown more firmness on recent negotiations for state bridge and other work. Some makers have raised their base price to consumers from 1.60c, Cleveland or Youngstown, for new billet steel bars, to 1.65c and 1.70c, depending on tonnage. Surplus stocks recently overhanging the market here have been used up. Hecker-Moon Co., Cleveland, has been awarded the general contract for the Wakeman, O., bridge, requiring 180 tons. Bars also are to be let soon for several other state jobs.

Awards Compared

	Tons
Awards, week ended Nov. 12	1,650
Awards, week ended Nov. 5	2,388
Awards, week ended Oct. 29	4,317
Awards, this week, 1931	4,189
Av. weekly awards, 1931	6,808
Av. weekly awards, 1932	4,171
Av. weekly awards, Oct.	5,397
Awards, to date, 1931	326,100
Awards, to date, 1932	191,897

Contracts Placed

300 tons, state hospital, Orangeburg, N. Y., to Capital Steel Co., New York; Longacre Engineering & Construction Co. Inc., New York, general contractor; bars placed through subcontractor.
300 tons, New York state highway work, to Wickwire-Spencer Steel Co., New York; through Stento & Sarafini Co., Binghamton, N. Y., contractor.
290 tons, building for W. K. Kellogg Co., Battle Creek, Mich., to Truscon Steel Co., Youngstown, O.; through Phelps Co., Battle Creek, general contractor.
210 tons, Aurora avenue bridge approach, Seattle, to Pacific Coast Steel Corp., Seattle; West Coast Construction Co., Seattle, general contractor.
200 tons, state highway bridge, Baltimore; awarded through Robinson Engineering Co., Baltimore, to Concrete Steel Co., Baltimore.
200 tons, Patterson Park high school, Baltimore, to Dietrich Bros., Baltimore.
150 tons, highway section S 28 2A, Old Bridge, N. J., to Truscon Steel Co., Youngstown, O.; through M. A. Tomlin, Atlantic City, N. J., contractor.

Contracts Pending

5058 tons, Golden Gate bridge, San Francisco. General contracts placed and subcontract for bars to be placed within a few days.
968 tons, estimated, for St. Louis-Kansas City Short Line railroad. Application filed for $35,000,000 loan from Reconstruction Finance Corp., for construction work.
460 tons, Federal hospital, Norfolk, Va.
360 tons, lock No. 5, Mississippi river, Fountain City, Wis.; bids Nov. 29.
350 tons, postoffice, Norfolk, Va., Consolidated Engineering Co., Baltimore, low on one alternate.
185 tons, Best Food store, San Francisco; bids being taken.
180 tons, state bridge, Wakeman, O.; general contract awarded to Hecker-Moon Co., Cleveland.

Carbine-Harang Machinery & Supply Co. Inc., New Orleans, jobber of machine tools and mechanical equipment, has filed a notice of dissolution.

Pipe

Prospects for Public Work in Spring Strengthening—Los Angeles Allocates 7400 Tons

PIPE PRICES, PAGE 63

Chicago—Cast pipe producers have only a few projects involving more than 100 tons on which to figure. Little business is looked for over the coming winter months. A fairly large potential volume of business is in prospect for spring. Bids are being taken on more than 500 tons for several small projects in Ohio and Kentucky.

Boston—Cast pipe buying is limited to a few fill-in orders, while inquiry also is small. Merchant pipe is moving slowly. Small lots of cast pipe, aggregating about 100 tons for Lakeville and Caanan, Conn., went to the Emaus, Pa., foundry.

New York — Eastern cast pipe foundries are not operating better than 30 per cent. Prices are firm at $30 to $32, foundry. Buying is in small lots.

An upstate water district placed 1000 tons of small sizes of cast pipe. Washington is taking bids on about 2800 tons, with alternates on steel, wrought iron or concrete.

Pittsburgh—Prices have been submitted to the Pure Oil Co., Chicago, for 4000 tons of pipe which the company intends laying between Toledo, O., and Detroit. The award is expected shortly, although installation will not be made until early next year. Standard pipe demand is off, and movement of oil country goods has suffered a reversal. The declines are in part seasonal. United States engineers in the Chattanooga, Tenn., district will close bids Nov. 15 on 23,760 feet of various sizes of pipe for lock and dam No. 3 in the Tennessee river.

Birmingham, Ala.—Several additional awards for cast iron pipe have been received here. Lack of money is delaying many municipal projects.

Cleveland — Approximately 200 tons of steel pipe is pending for the Cleveland postoffice, general contract bids for which are to be opened soon. Miscellaneous orders are small.

Cast Pipe Placed

7443 tons, 6 to 12-inch, Los Angeles, allocated as follows: 4973 tons to United States Pipe & Foundry Co., Birmingham, Ala.; 1190 tons to R. D. Wood & Co., Emaus, Pa.; 690 tons to American Cast Iron Pipe Co., Birmingham, Ala; 370 tons to National Cast Iron Pipe Co., Birmingham, Ala., and 220 tons to Pacific States Cast Iron Pipe Co., Provo, Utah.

1000 tons, 6 to 10-inch, Niskayuna water district, Niskayuna, N. Y., to United States Pipe & Foundry Co., Burlington, N. Y.; bids Oct. 27.

370 tons, ammunition depot, Lake Denmark, N. J., to United States Pipe & Foundry Co., Burlington, N. J.; Temple Construction Co., New York, general contractor.

Cast Pipe Pending

2850 tons, 48-inch, water main, Washington; bids Nov. 21, with alternates on steel, wrought iron or concrete pipe.

320 tons, 12-inch, Fort Monroe, Va., Central Foundry Co., Birmingham, Ala., low.

Unstated tonnage, 27,550 feet various sizes for St. Louis-Kansas City Short Line railroad. Application filed for $35,000,000 loan from Reconstruction Finance Corp., for construction work.

Steel Pipe Pending

200 tons, various sizes, postoffice, Cleveland; general contract bids set for Nov. 15. Date may be postponed.

Unstated tonnage, 1500 feet, 20-inch steel shore discharge pipe, United States engineer, Jacksonville, Fla.; Chicago Bridge & Iron Works, Chicago, low. Same office has bids on 500 feet, 10-inch, closing Nov. 14.

Unstated tonnage, 23,760 feet various sizes, lock and dam No. 3, Tennessee river; bids Nov. 15 by United States engineers, Chattanooga, Tenn.

Tin and Enameled Ware Demand Gains Notably

Two Milwaukee manufacturers of tin and enameled ware, the National Enameling & Stamping Co. and the Geuder, Paeschke & Frey Co., report a noticeable upturn in orders, principally for immediate shipment. Dealers' stocks are reported almost depleted and they are ordering as merchandise is needed to supply consumer demand. The character of demand is such that production schedules are extremely flexible, swinging widely from week to week. The price situation, however, is reported to be quite unsatisfactory.

Are Low on Navy Forgings

Midvale Co., Philadelphia, is low on nickel steel forgings for the navy, eastern yards, at $63,173.03, delivered. Titusville Forge Division, Titusville, Pa., is low on nickel steel forgings for the eastern yards at $13,352.19. delivered, and $12,744.95, f.o.b. works.

Erie Forge Co., Erie, Pa., is low on steel forgings for the eastern yards at $85,125.84, delivered, while for Puget Sound, Titusville Forge Division is low at $20,977.33, delivered, or $19,849.50, f.o.b. works. These bids closed Nov. 8.

Mirrors of Motordom

(*Concluded from Page* 15)

a new six lower than anything Nash has marketed for several years will be offered. There will be Nash eights on 121, 128, 133 and 142-inch wheelbases.

Graham forecasts a good production schedule during December and January, having released orders for $1,500,000 worth of material, one of the largest buys in the company's recent history.

The Jordan will be revived by a company incorporated at Cleveland as Jordan Motors Inc., of which John McArdle, vice president and general manager of the defunct Jordan Motor Car Co. is president. A new plant will be required, as the former Jordan plant has been sold. It is said that the new company will manufacture straight eights beginning in February.

Chevrolet Becomes of Age

Chevrolet was 21 years old Nov. 3; over 8,000,000 cars and trucks constitute its total output to date; it became a part of General Motors in 1918, and in 1927 attained the goal of 1,000,000 units in one year. . . . Ford Motor Co. has officially denied that it will abandon 26 inland assembly plants and center its assemblies in six seaport cities; however, an important announcement concerning Ford policies may be made within the next ten days. . . . Briggs has made two substantial purchases of wire netting, which is galvanized after weaving and used to reinforce the tops of bodies. . . . Ford plans for economy in the cost of some models include elimination of this netting. . . . Dies are now being made for the new light Willys.

Class I railroads Aug. 1 had 8391 locomotives in need of classified repair, an increase of 58 from July 1, according to the American Railway association.

Strip

Demand Fails to Expand as Automotive Industry Gives Only Important Tonnage

STRIP PRICES, PAGE 45

Pittsburgh—One strip interest ran two of its mills last week and another placed two in operation Nov. 9. Strip demand continues largely for narrow hot-rolled sizes, with some need for cold-rolled fender stock. Operations are sustained on day-to-day orders, while the rate of activity has risen to over 20 per cent. Unfilled order backlogs are about the same as a month or two ago. Firmness in the base price of 1.45c seems apparent in hot-rolled strip. Small miscellaneous cold strip buying is based on 2.00c.

New York—Strip buying is featureless. In general the volume so far this month has not been up to that of the corresponding period of October, when buying by manufacturers identified with the textile industry was more active. Hot-rolled sheets are 1.45c, Pittsburgh, and cold-rolled, 2.00c, Pittsburgh.

Philadelphia—Strip sellers report little improvement over the decidedly listless situation prevailing in the early part of this month. While confident of an increase before the end of the month, they see few indications of a material improvement before the first of next year. Hot strip is unchanged at 1.45c, Pittsburgh, and cold strip at 2.00c.

Elliott Bros. Steel Co., New Castle, Pa., has been awarded approximately 122 tons of cold-rolled strip for the post office department, Washington, at $8412.50, delivered.

Cleveland—Except for some moderate additional automotive releases, strip demand is slower. New orders and specifications are for small lots. Many consumers want seconds, and are getting them. Leading makers are holding the market for prime quality hot-rolled strip at 1.45c to 1.50c, base, Pittsburgh, depending on tonnage. While efforts to stabilize the market for cold-rolled at 2.00c, base, Cleveland, have had some effect, at least one factor continues to offer cold-rolled at 1.90c, and indicates 1.80c would be done on sizeable amounts.

Chicago—Strip demand was fairly steady the past week, with production about 15 per cent. Occasional gains in orders from automotive interests are offset by lighter requirements of some miscellaneous consumers. Automotive tonnage, however, is expected to increase over coming weeks. Prices are provided little test, usually being 1.55c, Chicago, for hot strip and 2.00c, Pittsburgh-Cleveland, for cold-rolled strip.

Steel Rate Holds at 21, Due To Auto Requirements

Pittsburgh—Steel ingot production gained one point last week to 20 per cent, thus fulfilling the advance anticipated. This increase was due to a 21 per cent operating rate in plants of a leading interest and continuation of 19 per cent by another leading mill. The Edgar Thomson rail mill went down Nov. 12. Nine out of 53 steelworks blast furnaces continue to blow. Four for Carnegie, three for Jones & Laughlin, and one each for Pittsburgh Crucible and Pittsburgh Steel.

Operations, week ended Nov. 12	**21**
Operations, week ended Nov. 5	**21**
Operations, week ended Oct. 29	**19.5**
Operations, one year ago	**31**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

Philadelphia—Eastern ingot operations are unchanged at 13 to 14 per cent, with no immediate improvement indicated.

Buffalo—Steel operations will hold at 22 per cent this week with possibility of a slight increase. The eight open hearths which were making steel last week are scheduled to continue this week, with possibly one or two additional units being added. Steelmakers expect the rate to hold at or above present levels until Thanksgiving.

Youngstown, O.—Steel operations here last week sagged 2½ points to 17 per cent because of reduction of activity of two independent open-hearth plants. They were expected to rebound to 19 per cent this week. Twenty-two of 83 open hearths were scheduled tentatively.

Cleveland—Steel ingot operations here went up to 35 per cent in the week ended Nov. 12, from 33½ per cent in the preceding week. During the past week Otis Steel Co., Corrigan, McKinney Steel Co. and American Steel & Wire Co. each operated four open hearths. The rate is scheduled to be increased this week to 38 per cent, as the Otis company was planning to put on a fifth unit beginning with the week. Others are scheduled to continue on last week's basis.

Chicago—Ingot production the past week failed to gain materially despite increased rolling of rails, and holds around 18 per cent. One independent interest is operating two fewer open-hearth furnaces than in October, and indications point to no marked change in the district's rate soon.

Birmingham, Ala.—Steelmaking operations here are slightly broader at 25 per cent. Sheet mills are operating better than other departments.

Nut, Bolt Buying Better; Railroad Needs Larger

Bolts, Nuts, Rivets Prices, Page 45

Pittsburgh—Several railroads have been the largest buyers in the bolt and nut market recently, according to local makers. One producer received several fair sized jobbing orders last week. Specifications have shown betterment over October. Price schedules of 75 off for bolts and nuts and rivet base of 2.25c, Pittsburgh, are holding. There has been no 1933 inquiry for either as yet.

Cleveland—The election apparently had no effect on demand for nuts, bolts and rivets, as the volume of orders in the past week was well sustained, and especially good from the railroads. Except for nut and bolt releases from Chevrolet, automotive business continues light. Some foreign bolts, with American made nuts on them, have appeared recently in the market, evidently from a seller that had the imported bolts in stock, but imports are not a serious factor at present. Prices of American made products are firm.

Chicago—While automotive specications for bolts and nuts are increasing slowly, total business shows slight change. Individual orders are small, even the largest consumers ordering in minimum lots and only for immediate needs. Specifications from the farm implement industry are light and generally unimproved, while demand from jobbers is slow. Shipments are expected to vary slightly over the remainder of the month. Prices continue steady and unchanged.

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Asterisk denotes price change this week

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.51 to 13.76
Virginia furnace	17.25
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90
Buff., all-rail, Newark	17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40
Buffalo, all-rail, Newark	17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Phila.	14.01 to 14.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	14.51 to 14.76

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo fur., local del.	16.50
Eastern Penna, delivered	14.63 to 18.91
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.00
Pittsburgh, delivered	14.63 to 15.13
Eastern Penn., del.	13.50
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19; 15—$21 to $23.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS

*Connellsville furnace	$1.75 to 2.00
Connellsville foundry	2.75 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens, outside del.	7.00
Chicago, del.	7.75
New England, del.	10.00
St. Louis, del.	7.75
*Birmingham, ovens	4.00
Indianapolis, del.	7.75
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces

(Nominal)

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

(Nominal)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.00 to 10.25
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50%	22 cents
Brazilian, 46-48%	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bessemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	26.00
Forging, Chicago	31.00
Forging, Pittsburgh	31.00
Forging, Philadelphia	35.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
*Spiegeleisen, 19-20%, domestic fur. spot†	24.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(The above for spot carlots. Contract price $5 a ton less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$12.00
Washed gravel, import duty paid tide, gross ton	18.50

WEIRTON

Coke AND Charcoal

TIN PLATE

WEIRTON PRODUCTS INCLUDE:

Pig Iron
Open Hearth Steel
Billets—Slabs—Sheet Bars—Skelp
Angles, Beams and Channels
Round, Square and Flat Bars
Rails—Steel Plates—Tie Plates—
Splice Bars
Reinforcing Bars
Coke Tin Plate
Kanners Special Cokes—
Best Cokes—Charcoals
Lacquered and Coated Tinplate
Tin Mill Black Plate (All Finishes)
Lacquered and Coated Black Plate
Open Hearth Copper Bearing Terne
Plate 8 lb. to 40 lb. Coated
Hot and Cold Rolled Strip Steel
and
Strip Steel Sheets
High Finish Sheets
Long Terne Sheets
(Common and Special Finishes)
Galvanized, Black and Blue
Annealed Sheets
Corrugated Sheets, V Crimp
Sheets, Roll Roofing
Single Pickled, Full Finished
and Auto Body Sheets
Coke—Tar—Benzol—Toluol—
Ammonium Sulphate

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WEIRTON tin plate is produced to conform rigidly to the recognized standards of the most exacting tin plate users. From mines to the finished product highly trained specialists, most modern processes and complete equipment assure consistent uniformity.

WEIRTON STEEL CO.

Division of National Steel Corporation

WEIRTON W. VA.

SALES OFFICES IN ALL PRINCIPAL CITIES

STEPS TO ECONOMY

Cut costs! Cut costs! The insistent demand for cost reduction challenges every detail of product design and manufacture. A number of manufacturers have made very definite savings by simplifying their process or product through the use of special rolled shapes. Some have been able to eliminate complicated jobs of fabrication. Others have found they could greatly reduce or entirely eliminate high machining costs.

The complex shapes that can be and have been rolled may amaze you. Those pictured here are but a few of the many hundred unusual sections we roll for manufacturers of every type of product—door hinges, magnetos, typewriters, baby carriages, automobiles, threshing combines . . . an almost endless list.

Perhaps in the manufacture of your product there is a step that can be eliminated or simplified by the use of a rolled shape, designed to meet your individual requirements . . . Carnegie engineers will welcome the opportunity of discussing this subject with you.

CARNEGIE STEEL COMPANY · PITTSBURGH

Subsidiary of United States Steel Corporation

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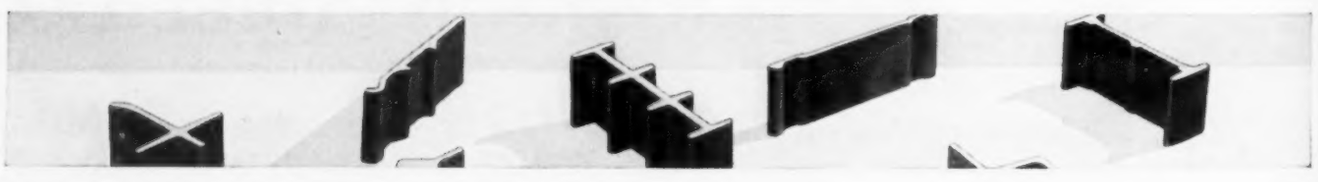


Pig Iron

Shipments Appear to Be Resisting Usual November Decline—Eastern Merchant Stack In

PIG IRON PRICES, PAGE 52

Pittsburgh—Pig iron sales dropped to near the vanishing point last week. Shipments are going ahead on the 25,000-ton basic pig iron order which the Allegheny Steel Co. placed several weeks ago. Both Wheeling Steel Corp. and Davison Coke & Iron Co. shipped several bargeloads of iron last week into Brackenridge, Pa. Nominally, the base of $15, Pittsburgh district furnace, is the foundry, bessemer and malleable quotation, but in competition this figure is shaded.

Boston—Pig iron buying is dull, total sales continuing well under 1000 tons for the week. Foreign iron continues to weaken prices, especially in southern New England, where $14 to $15, delivered, is being done, depending on delivery points. The New England furnace holds to its $16 minimum. Indian iron is offered at $14.50 to $15, dock.

New York—Demand is quiet, with few inquiries for more than 100 tons. Prices are unchanged at $14, furnace, for Buffalo foundry iron, and $12.75 to $13, furnace, for eastern Pennsylvania iron. Some southern iron is moving at $15.50 local docks.

Philadelphia—Though new inquiries are light there is an improvement in specifications on contracts. Prices are unchanged at $12.75 to $13, furnace, for eastern Pennsylvania foundry iron; and $13.50, delivered, eastern Pennsylvania, for basic. The Alan Wood Steel Co.'s stack at Swedeland, Pa., was blown in last week. This is the only merchant furnace in operation in the East, the first to be active in many months.

Buffalo—Slightly stronger prices prevail in eastern territory, Buffalo producers report. Several bargeloads of iron went forward during the week end, despite the fact higher rates were in effect between Buffalo and the seaboard.

Cleveland—The market is quieter, furnace interests with headquarters at Cleveland having booked 2000 tons in the past week, about half the volume reported in recent weeks. Inquiry also is much lighter. Melters apparently covered requirements for the remainder of the year in the October buying movement. Shipments so far this month show little variation from the rate in the comparable period last month. The market in the local area continues $15, base, furnace, and in outside competitive territory, $14 to $14.50, base lake furnace.

Cincinnati—Shipments of pig iron so far this month are slightly improved. New orders are light. The peak of production of heating equipment has been passed for the season.

Chicago—Pig iron shipments to automotive foundries show small gains in some directions. Requirements of other consumers generally lack improvement and total shipments this month are expected to show but little change from the October volume. In view of the fact that consumption ordinarily declines at this period, however, a continuation of last month's rate is regarded as encouraging. Business from farm implement manufacturers still is lacking. The market continues steady at $15.50, furnace, for No. 2 foundry and malleable iron.

St. Louis—Shipments are slightly slower than in October, and new orders are small, 1200 tons being placed here in the past week. A stove manufacturer purchased 350 tons. No inquiries have appeared in months for basic.

Birmingham, Ala.—November is expected to duplicate October's sales and shipments, with five blast furnaces continuing active. No. 2 foundry iron is $11, base, furnace, for southern delivery, and $10 for distant points.

Toronto, Ont.—Melters adhere to a hand-to-mouth buying policy, and no contracts have been placed recently for the remainder of the year. Small orders for the week aggregated 500 tons.

Semifinished Quiet

Semifinished Prices, Page 52

Billet and sheet bar orders are being issued sparingly, and at a rate somewhat less than in October. This is due in part to adequate stocks at several nonintegrated mills. Forging quality billets are holding at $31, and wire rods are $37, Pittsburgh. The base of $26 is applying for sheet bars, billets and slabs.

Lake Ore Stocks Lower

Iron Ore Prices, Page 52

Cleveland—Iron ore stocks at Lake Erie ports Nov. 1 were 5,223,086 tons, compared with 6,079,512 tons Nov. 1, 1931, according to the Lake Superior Iron Ore association. Receipts for the season to Nov. 1 were 2,408,054 tons, and at other lake ports, 768,078 tons.

Coke

Beehive Furnace Fuel Price Is Reduced — Foundry Grades Steady—Shipments Hold Up

COKE PRICES, PAGE 52

Pittsburgh—Shipments of furnace and by-product foundry coke are routine. Beehive foundry coke continues $4.25, and $2.75 for the common grades. Furnace coke now can be bought for as low as $1.75, Connellsville. Some coke, however, continues to move at $2.

New York—Sellers of metallurgical coke report a slight improvement in specifications. Beehive furnace coke is $1.50 to $2, Connellsville, for heating purposes; and $2 to $2.15, for smelting purposes. Beehive foundry coke is $2.75 to $4.25, western Pennsylvania ovens. By-product foundry coke is $8.21 to $8.81, delivered Newark, N. J.; $10, New England; and $8.50 Philadelphia.

Cincinnati—Demand for by-product foundry coke is steady. Shipments of domestic grades were curtailed during the past week. Foundry coke continues $9.05 delivered, Cincinnati.

Chicago—Shipments of by-product foundry coke compare favorably with the October rate, while the movement of domestic heating coke is less active following heavy shipments prior to an advance in prices Nov. 1. Foundry coke continues $7, ovens, for outside delivery.

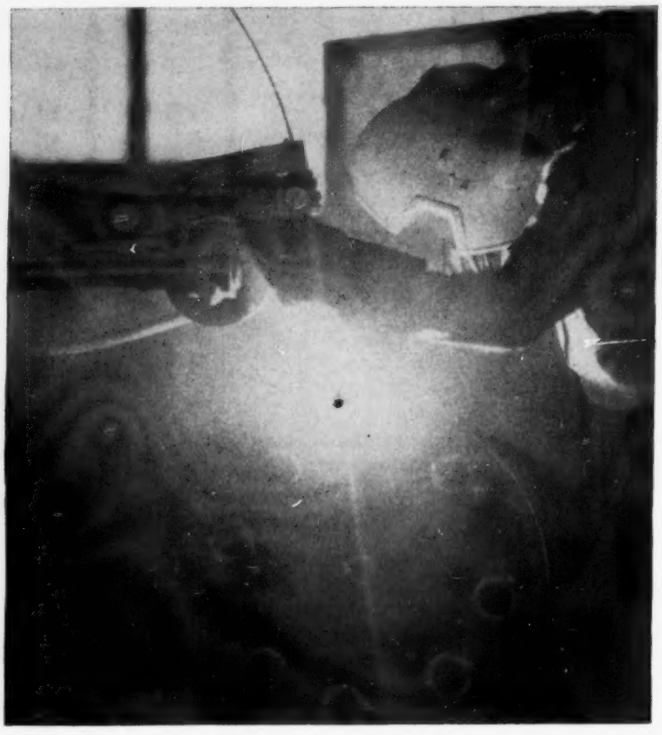
St. Louis—The movement of metallurgical coke has slowed, but still is above that of August and September. Stove and heating apparatus foundries are taking less coke than recently. Domestic fuel demand is holding up.

Birmingham, Ala.—By-product coke production here continues at 40 per cent. Some shipments to the Middle West are noted. Prices are steady.

Welding

Whether arc, spot, butt, seam, projection or flash welding is employed, Youngstown sheets weld easily and insure a clean, strong joint.

At the right is pictured an arc welding operation in the manufacture of one of the thousands of products in which the welding qualities of Youngstown steel sheets are being constantly demonstrated.



YOUNGSTOWN SHEETS

Describe in detail the qualities you need in a sheet and you will find that Youngstown can match them with surprising accuracy.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices: **YOUNGSTOWN, OHIO**

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

YOUNGSTOWN

SHEETS FOR EVERY PURPOSE .. INCLUDING YOURS

Scrap

Prices Nominal in Absence of Orders—Offers Under Market Bring No Response

Chicago—Scrap demand and prices generally hold at recent levels. Shipments against orders are fairly steady, but no new buying of heavy melting steel is noted. Additional tonnage is expected to be shipped by boat, serving to relieve the market of some excess material. Local consumers, however, are out of the market or purchasing only small lots. Heavy melting steel continues $5.75 to $6, the range it has maintained for two months, and quotations on other grades also are fairly steady.

Boston — Scrap demand is dull, with New England consumers taking only small lots as needed. Outside demand is also light, although a few water shipments to eastern Pennsylvania are being negotiated. Worcester is paying $5 to $5.25 for No. 1

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to 7.00
Boston, dealers	3.00 to 3.25
Buffalo, No. 1	7.50 to 8.00
Buffalo, No. 2	6.25 to 6.75
Chicago	5.75 to 6.00
Cleve., No. 1	7.00 to 7.50
Cleve., No. 2	6.00 to 6.50
Det., No. 1 deal.	5.50 to 6.00
Det., No. 2 deal.	4.00 to 4.50
E. Pa. del. mill	7.00 to 7.50
E. Pa., No. 2 del.	5.50 to 6.00
N. Y. deal. R. R.	4.50 to 4.75
N. Y. deal, No. 2	3.50
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	9.00 to 9.50
St. L. No. 1 sel.	6.00 to 6.50
Federal, Ill.	5.50 to 6.00
Granite City, Ill.	5.00 to 5.50
Valleys, No. 1	9.00 to 9.50

COMPRESSED SHEETS

Buffalo, dealers	6.25 to 6.75
Chi. (Factory)	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, dealers	5.25 to 5.75
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	8.75 to 9.25
Valleys	8.50 to 9.00

BUNDLED SHEETS

Buffalo	4.25 to 4.75
Cinci., del.	4.25 to 4.75
Cleveland	4.50 to 5.00
Eastern, Pa.	5.00
Pittsburgh	7.75 to 8.25
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00 to 2.50
Cincinnati	2.00 to 2.50
Detroit, dealers	1.75 to 2.25
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	7.50 to 8.50
Boston, dealers	2.75 to 3.00
Buffalo	9.50 to 10.00
Chicago (3 ft.)	8.00 to 8.50
Chicago (2 ft.)	8.50 to 9.00
Cinci., del.	9.00 to 9.50
Detroit, deal.	8.00 to 8.50
Pitts. (open-hearth, 3 ft. and less)	10.00 to 10.50
St. Louis	7.50 to 8.00

STOVE PLATE

Birmingham	5.75 to 6.25
Boston, dealers	2.50 to 3.00
Buffalo	7.75 to 8.00
Chicago, net	5.75 to 6.25
Cinci., deal. net	3.50 to 4.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	6.00 to 6.50
N. Y., deal. mill	2.50 to 3.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	9.00 to 9.50
Chicago	6.50 to 7.00
Eastern Pa.	9.00 to 9.50
Pittsburgh	9.25 to 9.75
St. Louis	6.00 to 6.50

ANGLE BARS—STEEL

Chicago	7.00 to 7.50
St. Louis	6.00 to 6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bil. and bloom crops	10.00 to 11.00
Eastern Pa.	9.00 to 9.50
Pittsburgh billet bloom crops	11.00 to 11.50
Pitts. sheet bar crops	11.00 to 11.50

FROGS, SWITCHES

Chicago	6.00 to 6.50
St. Louis	6.00 to 6.50

SHOVELING STEEL

Chicago	5.75 to 6.00
Cleveland	5.75 to 6.00
St. Louis	5.00 to 5.50

RAILROAD WROUGHT

Birmingham	4.50 to 5.50
Boston, dealers	1.00 to 1.50
Buffalo, No. 1	4.50 to 5.00
Buffalo, No. 2	7.00 to 7.50
Cinci., No. 2	5.75 to 6.25
Chi., No. 1, net	5.00 to 5.50
Chicago, No. 2	5.75 to 6.00
Eastern Pa.	7.00 to 7.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	9.00 to 9.50
St. Louis, No. 1	3.50 to 4.00
St. Louis, No. 2	5.00 to 5.50

SPECIFICATION PIPE

Boston	3.00 to 4.00
Eastern Pa.	7.00 to 7.50
N. Y., deal	2.00 to 2.25

BUSHELING

Buffalo, No. 1	6.25 to 6.75
Chicago, No. 1	4.00 to 4.50
Cinn., No. 1 dl.	4.00 to 4.50
Cinn., No. 2	2.50 to 3.00
Cleve., No. 2	3.00 to 3.50
Det., No. 1 new deal	4.75 to 5.25
St. L., No. 1	3.00 to 3.50
Val. new No. 1	8.25 to 9.75

MACHINE TURNINGS

Birmingham	3.00 to 3.50
Boston, dealers	0.75 to 1.00
Buffalo	3.75 to 4.25
Chicago	3.00 to 3.50
Cin., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit	3.00 to 3.50
Eastern Pa.	3.50 to 4.00
N. Y., deal	1.35 to 1.50
Pittsburgh	6.25 to 6.75
St. Louis	1.50 to 2.00
Valleys	6.75 to 7.25

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, dealers	.75 to .90
Buffalo	3.75 to 4.25
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	3.50 to 4.00
Eastern Pa.	3.50 to 3.75
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.50 to 7.00

CAST IRON BORINGS

Birming., chem.	12.00 to 13.00
Birming., plain	3.00 to 3.50
Boston, chem.	5.50 to 6.00
Boston, dealers	1.00 to 1.25
Buffalo	4.25 to 4.50
Chicago	4.00 to 4.50
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	3.50 to 4.00
Eastern Pa.	3.50 to 3.75
E. Pa., chem.	8.00 to 10.50
N. Y., deal.	1.00 to 1.50
Pittsburgh	6.50 to 7.00
St. Louis	2.75 to 3.25

PIPE AND FLUES

Cinn., deal.	3.25 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	5.00 to 5.50
Cincinnati	4.00 to 4.50
Eastern Pa.	5.50 to 6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.00 to 2.50
Buffalo	5.50 to 6.00
Cleve. ov. 10 in.	6.00 to 6.50
Detroit	4.00 to 4.50

FORGE SCRAP

Boston, dealers	1.75 to 2.00
Chicago	7.00 to 7.50
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	5.00 to 5.50
St. Louis	5.00 to 5.50

AXLE TURNINGS

Boston, deal	5.50 to 6.00
Buffalo	6.50 to 7.00
Chi., elec. fce.	4.50 to 5.00
Cleveland	5.50 to 6.00
Eastern Pa., del.	7.00
Pittsburgh, O. H.	7.50 to 8.00
St. Louis	3.50 to 4.00

STEEL CAR AXLES

Birmingham	9.00 to 9.50
Boston, ship. pt.	6.00 to 6.50
Buffalo	10.00 to 10.50
Chicago, net	8.50 to 9.00
Eastern Pa.	14.50
St. Louis	9.00 to 9.50

SHAFTING

Boston, ship. pt.	6.50 to 7.00
N. Y., deal.	6.50 to 7.00
St. Louis	7.50 to 8.00
E. Penna.	11.00 to 12.00

CAR WHEELS

Birming., iron	7.00 to 7.50
Boston, iron deal.	3.50 to 4.00
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.50 to 9.00
Chicago, iron	7.25 to 7.75
Chi., rolled steel	7.00 to 7.50
Cincinnati iron	6.25 to 6.75
E. Pa. steel	9.00 to 10.00
E. Pa. iron	9.00 to 9.50
Pitts., iron	9.00 to 9.50
Pitts., steel	9.50 to 10.00
St. Louis, iron	5.00 to 5.50
St. Louis, steel	7.00 to 7.50

NO. 1 CAST SCRAP

Birmingham	6.50 to 7.50
Buffalo (Mach.)	10.00 to 10.25
Buffalo, cupola	9.00 to 9.50
Boston, textile	6.75 to 7.00
Boston No. 2	3.00 to 3.50
Chi., mach. net	6.25 to 6.75
Chi., railroad, net	5.75 to 6.25
Chicago, agri., net	5.50 to 6.00
Cinn., mach. cup.	7.00 to 7.50
Cleve. cupola	7.00 to 8.00
Det., net deal.	6.50 to 7.00
E. Pa. cupola	9.00 to 9.50
N. Y., cup. deal.	5.50 to 6.50
N. Y., del. local foundries	8.00 to 8.50
Pitts., cupola	9.50 to 10.00
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. L. No. 1 ma.	6.50 to 7.00
St. L., No. 1	6.00 to 6.50

HEAVY CAST

Boston, del.	4.00 to 4.25
Bost., mach. cast	7.00 to 7.50
Buffalo, break	6.50 to 7.00
Cleve., break	4.50 to 5.00
Detroit, auto, net deal.	7.00 to 7.50
Det., break., dl.	4.50 to 5.00
Eastern Pa.	8.75 to 9.00
N. Y. No. 1, dl.	5.00 to 5.50
N. Y. break, dl.	4.75 to 5.25
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston, consum.	8.00 to 8.50
Buffalo	8.00 to 8.50
Chicago, agri.	5.00 to 5.50
Chicago, R. R.	6.00 to 6.50
Cinci., R. R., del.	7.50 to 8.00
Cinci., agri. del.	7.00 to 7.50
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 5.50
St. Louis, rail	4.50 to 5.00

RAILS FOR ROLLING

5 feet and over

Birmingham	7.50 to 7.75
Boston, deal.	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	8.25 to 8.75
Eastern Pa.	9.50
New York dealer	4.25 to 4.75
St. Louis	7.25 to 7.75

LOCOMOTIVE TIRES

Chicago, cut	7.00 to 7.50
St. L., No. 1	5.00 to 5.50

LOW PHOS. PUNCHINGS

Chicago	7.50 to 8.00
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	11.00 to 11.50

heavy melting steel delivered, $4 for No. 2 and $3.25 to $3.50 for skeleton. Railroad malleable to consumers is slightly firmer. Most cast grades are unchanged with $4.90 paid by a dealer for one moderate tonnage of textile.

New York—With the exception of some barge loading for export to Japan at $4.50 for No. 1 steel and a moderate movement of stove plate to Harrisburg and Bayonne, most scrap grades are listless. Inquiry has been received for 5000 to 10,000 tons of miscellaneous scrap for Italy for shipment through December and January. Stove plate to Harrisburg is reported $7, delivered.

Philadelphia—Apart from small scattered tonnages, scrap buying is at a standstill. Heavy breakable cast is easier at $8.75 to $9, delivered, with some tonnage closed recently for Harrisburg, Pa., at the inside figure. The general tone of the market is easy, but no changes are noted otherwise.

Buffalo—It is reported that 3000 tons of blast furnace scrap is enroute to Buffalo from Chicago, the last scheduled to move here by water this season unless unexpected purchases are made. Steelworks are not interested in heavy melting steel now, but must buy shortly, dealers believe. Prices are steady and unchanged, although quotations are nominal.

Pittsburgh—In anxiety to secure orders, offers of $8.75 have been made to consumers on No. 1 heavy melting steel. However, there have been no sales recently and the market continues nominally unchanged at $9 to $9.50, in view of the last sales at the high side of that spread. The Baltimore & Ohio is closing Nov. 14 on 5600 tons of scrap, which includes 500 tons of No. 1 heavy melting and 3000 tons of cast wheels. The Pennsylvania railroad's list, offered a week ago, was not entirely sold. The 10,600-ton lot of No. 1 heavy melting steel was disposed of only in part and about 2500 tons were sold at close to $9.50. This tonnage, which was divided among several interests, is being shipped on current orders. Specialties on the Pennsylvania railroad list brought around $10.

Cleveland—Small and infrequent shipments of scrap are being taken by northern Ohio consumers, mostly of heavy melting steel. Buying is not expected to revive until late in the month. Local dealers refuse to bid on railroad lists, being unable to ship outside. Quotations are unchanged.

Detroit—Due entirely to a lack of demand, heavy melting steel, compressed sheets and loose sheet clippings are off 25 cents, the new range of No. 1 heavy melting steel being $5.50 to $6. Dealers are confident that even a moderate demand for scrap would put the market up $1 a ton.

Cincinnati—Iron and steel scrap is lifeless, with little mill interest in building up inventories. Prices are holding fairly well, with a minimum effect from reductions elsewhere.

St. Louis—Conditions of extreme quiet obtain in iron and steel scrap. Sales reported consisted of a round tonnage of steel to the American Steel Foundries for delivery over the remainder of this year and a few special orders of miscellaneous grades for prompt shipment.

Birmingham—Demand for steel and iron scrap is slow and supplies are ample for all requirements.

Toronto, Ont.—Iron and steel scrap sales are being maintained at a better level than during the summer. Sales of heavy melting steel have increased somewhat, with chief interest in the Montreal field. Dealers are offering $7 for heavy melting steel, but are not bidding for supplies. Railway offerings of scrap are lighter than usual. Wrought iron and steel axles have become more active in the Montreal field.

R. F. C. Bans Foreign Steel On Govt.-Aid Projects

(*Concluded from Page* 13)

experts are going ahead with their dumping investigations.

It is reported that preliminary statements which have been received from Belgium by the bureau do not indicate that any dumping is shown from that country on any of the iron or steel products against which complaint has been made. However, the bureau still is awaiting a fuller report from that country. To this time, reports have not been received on dumping from either Germany or France.

□ □ □

Interstate commerce commission has suspended until June 3, 1933, the operation of certain railroad schedules which propose to cancel the fabrication-in-transit privilege on certain iron and steel articles, including wire, at stations on the Chicago, Burlington & Quincy railroad.

□ □ □

Marks of origin on iron and steel hollowware imported into Great Britain have been recommended by the standing committee of the British board of trade, according to assistant Commercial Attache Fox at London.

Unfilled Tonnage Records Third Consecutive Gain

For the third consecutive month the unfilled tonnage of the United States Steel Corp., as of Oct. 31, showed a slight increase. As in the case of the two preceding months, the percentage of gain was less than 1. Total reported on books Oct. 31 was 1,977,040 tons, a gain of 11,950 tons for the month, or 0.625 per cent. Comparisons follow:

	Unfilled orders	Net change	Per cent change
1931			
Jan. 31	4,132,351	188,755+	4.78+
Feb. 28	3,965,194	167,157—	4.04—
Mar. 31	3,995,330	30,136+	0.73+
Apr. 30	3,897,729	97,601—	2.24—
May 31	3,620,452	277,277—	7.11—
June 30	3,479,323	141,129—	3.89—
July 31	3,404,816	74,507—	2.14—
Aug. 31	3,169,457	235,359—	6.91—
Sept. 30	3,144,833	24,624—	0.77—
Oct. 31	3,119,432	25,401—	0.80—
Nov. 30	2,933,891	185,541—	5.94—
Dec. 31	2,735,353	198,538—	6.77—
1932			
Jan. 31	2,648,150	87,203—	3.19—
Feb. 29	2,545,629	102,521—	3.88—
Mar. 31	2,472,413	73,216—	2.87—
Apr. 30	2,326,926	145,487—	5.88—
May 31	2,177,162	149,764—	6.44—
June 30	2,034,768	142,394—	6.54—
July 31	1,966,302	68,466—	3.36—
Aug. 31	1,969,595	3,293+	0.16+
Sept. 30	1,985,090	15,495+	0.78+
Oct. 31	1,977,040	11,950+	0.62+

Spiegeleisen Price Reduced $1 a Ton

Ferroalloy Prices, Page 52

A reduction of $1 a ton to $24, furnace, has been announced in New York on domestic spiegeleisen, 19 to 21 per cent, for lots up to 100 tons, spot delivery. The usual differentials prevail for larger quantities. Ferromanganese holds at $68, duty paid, for car lots. Several good inquiries for ferroalloys are noted in the Pittsburgh district.

Widens Sheet Metal Courses

Board of vocational education, Green Bay, Wis., has restored on an enlarged scale its courses in sheet metal working, due to the increased substitution of sheet metal for other materials. There is a course in bench work including fundamental processes and forms of fabricating for beginners; the second is on a trade extension basis; the third deals with heating and air conditioning.

"No need for this expensive finish..."

SUGGESTED SHARON SPECIFICATIONS

RESULT ▼ SUBSTANTIAL PRODUCTION SAVINGS FOR THE MANUFACTURER

It was an important, though unexposed part of a well known, nationally advertised commodity. Examination by one of Sharon's Metallurgists revealed that the manufacturer was using an expensive finish steel for the part, which was galvanized. ▼ After further metallurgical research, a less costly finished steel, but with added special physical characteristics to do the job better, was worked out. Many carloads of this "Sharon Specifications" improved steel have since been used successfully—and at a great saving to the manufacturer. ▼ Just one of many examples of the profitable use that can be made of "Sharon Specifications." Your product merits this experienced Engineering Service which assures the right use of the right steel for the product. ▼ Write for detailed explanation, stating your problem. It will be well worth your while.

SHARON STEEL HOOP CO.—SHARON, PA.

Strip Steels
Hot and Cold Rolled
—
"Nevastain"
Stainless Steels
—
"*Enamelite*"
Enameling Iron
—
Steel Sheets

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 6.25c, Conn., for copper

SHEETS	
Yellow brass (high)	12.50
Copper, hot rolled	15.37½
Lead sheets, cut, to jobbers	7.00
Zinc sheets (100-lb. base)	9.00
TUBES AND PIPES	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
RODS	
Yellow brass (high, full turning)	10.25
Naval brass	11.37½
ANODES	
Copper, untrimmed	12.25
WIRE	
Yellow brass (high)	12.50

Old Metals

Dealers' buying prices, cents lb.

	No. 1 Composition	Red Brass
New York	2.75 to	3.00
Chicago	2.25 to	2.50
Cleveland	2.50 to	2.75
St. Louis		2.50
HEAVY YELLOW BRASS		
New York	1.87½ to	2.00
HEAVY COPPER AND WIRE		
New York	3.50 to	3.75
Chicago, No. 1	3.25 to	3.50
Cleveland	2.75 to	3.00
St. Louis		2.75
COMPOSITION BRASS BORINGS		
New York	2.50 to	2.75
YELLOW BRASS TUBING		
Cleveland	1.50 to	2.00
LIGHT COPPER		
New York	2.87½ to	3.00
Chicago	2.25 to	2.50
Cleveland	2.25 to	2.50
St. Louis		2.50
LIGHT BRASS		
Chicago	1.25 to	1.50
Cleveland	1.00 to	1.25
St. Louis		1.50
LEAD		
New York	2.00 to	2.25
St. Louis		2.00
ZINC		
New York	1.12½ to	1.25
Cleveland	1.00 to	1.12½
St. Louis		1.25
ALUMINUM		
Clippings, new, soft, Cleve.	9.50 to	10.00
Clippings, hard, Cleveland	7.00 to	8.00
Borings, Cleveland	3.00 to	3.50
Mixed cast, Cleveland	4.00 to	5.00
Mixed cast, St. Louis	3.00 to	3.25

Secondary Metals

Remelt aluminum No. 12	8.00 to 9.00
Brass ingot, 85-5-5-5	5.75

Metals

Advance in Lead and Slightly Firmer Prices on Copper Are Outstanding—Zinc Is Quiet

New York—Higher prices for lead and a slightly firmer situation in copper were outstanding in the metal market last week. Tin trading lagged but prices were somewhat higher. Zinc continued quiet as did antimony and aluminum.

Copper—Some custom smelter producers of copper raised their prices on electrolytic metal to 5.37½c, Connecticut, for delivery this year but at least one interest was willing to sell at 5.25c. For first quarter delivery 5.37½c to 5.50c was asked. Mine producers continued out of the market at the nominal asking quotation of 6.25c. Lake copper sellers continued to quote 6.25c and 6.37½c, delivered, on arsenical and prime grades, respectively. Consumers placed few commitments for metal and the stronger tone of the market was accountable to a firmer situation abroad. Foreign prices ranged as high as 5.75c, c.i.f. European ports. Copper and brass products and brass ingot held unchanged in the domestic market.

Lead—American Smelting & Refining Co. advanced its contract price $3 a ton to 3.15c, New York, Wednesday. Other sellers also advanced their prices to this basis The leading midwestern interest, however, quoted only $2 a ton higher at 3.00c, East St. Louis. Demand was in good volume with corroders and sheet, pipe and cable makers the heaviest buyers. Buying was about equally divided between November and December shipment.

Zinc — Zinc remained generally quiet with prices unchanged. Producers did not appear anxious to take business at current low levels, especially in view of the continued improvement in the statistical position of the industry.

Antimony — The market retained recent strength but sales were light and limited to small lots.

Tin—Quotations were somewhat higher due to the strength obtaining in the London market and firmness in sterling exchange. Actual business done, however, was comparatively insignificant.

Aluminum—Prices were unchanged with demand quiet. One steel mill was reported to have purchased 94-98 per cent deoxidizing aluminum at 11.00c.

Distillates Steady

New York—Demand for distillates is unchanged and prices are firm on continued low output. Distributors look for an increase in demand from lacquer manufacturers later this month due to automobile activity. Sulphate of ammonia is quiet. Phenol buying is slow. Contracting is getting under way for naphthalene.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.153 to 0.173
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls*	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.0525

Quicksilver Is Firm

New York—Quicksilver prices are firm, small lots for prompt delivery being $50, a virgin flask of 76 pounds, and round lots $49. Demand is holding up fairly well.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper, Electro delivered	Copper, Lake delivered	Copper, Casting refinery	Straits Tin, New York, Spot	Straits Tin, New York, Futures	Lead, N. Y.	Lead, East St. L.	Zinc, St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
Nov. 5	5.30	6.37½	5.05	23.35	23.50	3.00	2.90	3.00	22.90	5.87½	35.00
Nov. 7	5.30	6.37½	5.05	23.65	23.80	3.00	2.90	3.00	22.90	5.87½	35.00
Nov. 8—Holiday											
Nov. 9	5.30	6.37½	5.05	23.75	23.90	3.15	3.00	3.00	22.90	5.87½	35.00
Nov. 10	5.30	6.37½	5.05	23.60	23.75	3.15	3.00	3.00	22.90	5.87½	35.00
Nov. 11	5.37½	6.37½	5.12½	24.15	24.30	3.15	3.00	3.05	22.90	5.87½	35.00

Pacific Coast

Awarding of Steel for Golden Gate Bridge Chief Feature of Western Market—Bridges and Other Public Work Take Tonnages—New Projects Develop Slowly and Most Buying Small

San Francisco—(*By Air Mail*)—Featuring the market this week was the placing of 28,000 tons of steel cable for the Golden Gate bridge, San Francisco, with John A. Roeblings Sons Co. In addition, the general contract for the approach spans, calling for 10,000 tons of shapes, was placed. Subcontracts for this tonnage will be placed within the next 10 days. Few new inquiries of size were noted. Prices are fairly firm at established levels.

Awards of concrete bars were confined to lots of less than 100 tons. In the issue of STEEL, Oct. 31, it was reported that unnamed interests took 465 tons for highway work in Santa Clara County, California, for the state. This was placed with the Soule Steel Co. An award for 5058 tons for the Golden Gate bridge is expected to be placed within the next week. Bids have been opened on 185 tons for the Best Food Store, San Francisco, and on 140 tons for work at Government Island, Calif.

Awards of structural shapes were the second heaviest of the year and aggregated 29,514 tons. In addition to 28,000 tons of cable for the Golden Gate bridge, mentioned above, 1100 tons for the Tuolumne river bridge, Modesto, Calif., was placed with the Moore Drydock Co. Bids have been opened on 318 tons for a bridge in Utah county, Utah, on 223 tons for the widening of a causeway in Yolo county, California, and on 190 tons for work at Government Island.

The largest cast iron pipe award of the year has just been placed, 7443 tons for Los Angeles. The United States Pipe & Foundry Co. secured 4973 tons, the American Cast Iron Pipe Co. took 690 tons, R. D. Wood & Co. booked 1190 tons, the National Cast Iron Pipe Co. and the Pacific States Cast Iron Pipe Co. secured 370 tons and 220 tons respectively. Bids will be opened Nov. 15 for 319 tons for Burbank, Calif.

Only Necessities Bought

Seattle—Requirements for steel are being postponed and volume is confined to actual necessities. Notwithstanding the lack of business, iron and steel prices are suprisingly firm in view of general conditions.

Some steel subcontracts still are pending, but the tonnages are not of great importance. New projects are not developing rapidly and practically all are public works. The only award this week over 100 tons was taken by the Pacific Coast Steel Corp., Seattle, 210 tons of reinforcing for an approach to the Aurora avenue bridge Seattle. The same job involves 50 tons of ornamental iron work.

Engineer F. A. Banks, Owyhee irrigation project, Nyssa, Oreg., will open bids Nov. 22 for installation of control gates, material for which was purchased by government officials in Denver. Bids Nov. 15 call for a number of shop and machine tools for the Puget Sound navy yard.

Jobbers are marking time, selling small tonnages out of stock and booking no mill business. Prices are being maintained here, but the open market at Portland is disturbing to dealers here.

Steel in Europe

Conditions Improve in Britain And on Continent

London — (*By Radio*) — Inquiries for steel and iron products are showing some expansion, and overseas trade is slightly livelier. Needs of the market in China are greater and that outlet is improving. The drop in sterling value is generally a favorable factor in trade.

Competition in British markets by Continental steel has become greatly lessened, but pig iron from India still is arriving in Scotland. The automotive industry is buying larger requirements of steel strip. A firmer price tendency is general.

Reports from the Continent are of quiet conditions, owing to seasonal holidays. Exports from Germany are livelier and prices are rising.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Nov. 10

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports	£ s d	Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	£ s d
PIG IRON				
Foundry, 2.50-3.00 Silicon	$9.62	2 18 6	$8.76 to $9.25	1 16 0 to 1 18 0
Basic bessemer	8.88	2 14 0*	6.81	1 8 0
Hematite, Phos. .03-.05	9.71	2 19 0	.....	.....
SEMIFINISHED STEEL				
Billets	$16.04	4 17 6	$10.22	2 2 0
Wire rods, No. 5 gage	24.68	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$25.50	7 15 0	$26.77	5 10 0
Merchant bars	.90c	6 2 6	.63c	2 17 6
Structural shapes	1.08c	7 7 6	.50c to .51c	2 5 0 to 2 6 0
Plates, †¼ in. or 5 mm.	1.29c	8 15 0	.69c to .72c	3 2 6 to 3 5 0
Sheets, black, 24 gage or 0.5 mm.	1.21c	8 5 0	1.27c	5 15 0
Sheets, gal., 24 gage, corr.	1.47c	10 0 0	1.51c	6 17 6
Bands and strips	1.14c	7 15 0	.72c to .74c	3 5 0 to 3 7 6
Plain wire, base	1.40c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.69c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.62c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.63	0 16 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

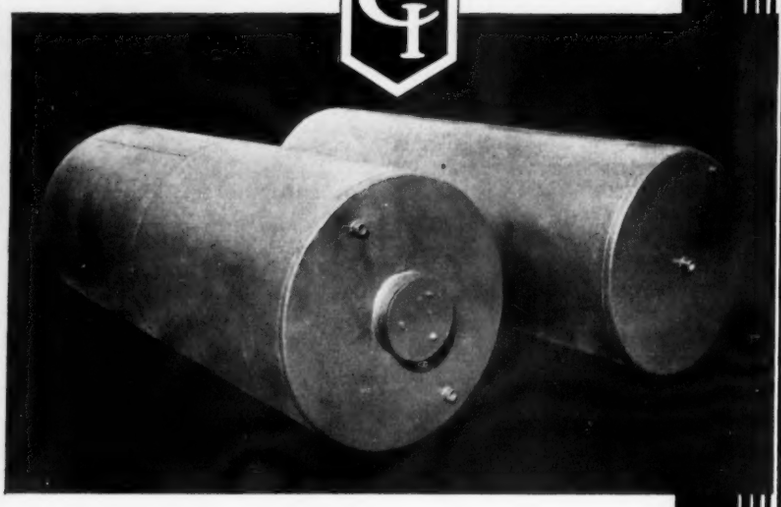
	£ s d	French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$ 9.62	2 18 6	$ 8.06	205(2)	$ 8.34	300	$16.40	69
Basic bessemer pig iron	8.88	2 14 0*	6.68	170(1)	7.51	270	17.95	75.50
Furnace coke	1.97	0 12 0	4.87	124	3.06	110	4.56	19.20
Billets	16.45	5 0 0	14.54	370	10.43	375	22.94	96.50
Standard rails	1.21c	8 5 0	1.25c	697	1.50c	1,150	1.37c	127
Merchant bars	.99c	6 15 0	.95c	530	.64c	495	1.19c	110
Structural shapes	1.29c	8 15 0	.99c	550	.62c	475	1.16c	107.50
Plates, †¼-in. or 5 mm.	1.32c	9 0 0	1.17c	650	.75c	575	1.37c	127
Sheets, black	1.32c	9 0 0§	1.44c	800‡	.86c	660‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm.	1.62c	11 0 0	2.83c	1,570	1.87c	1,440	4.00c	370
Plain wire	1.40c	9 10 0	2.03c	1,130	1.69c	1,300	1.92c	178
Bands and strips	1.40c	9 10 0	1.04c	580	.83c	540	1.37c	127

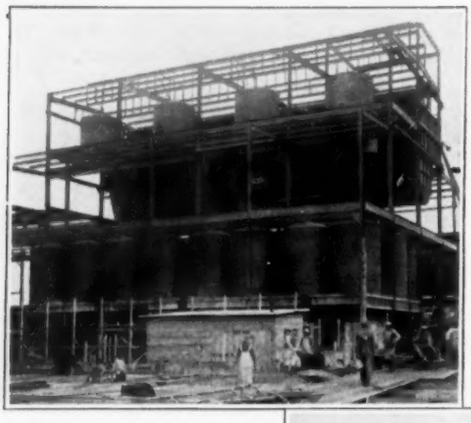
*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

TENNESSEE STEEL—

in

SMALL TANKS





Thousands of tons of Tennessee Plates and Sheets are annually consumed in the manufacture of small storage and miscellaneous tanks. Adapted either to welded or riveted construction and furnished in all standard qualities and finishes, Tennessee products admirably fulfill the requirements of the tank builder.

Tennessee produces a full line of rolled steel products, including in addition to the above, structural shapes, bars, rails and accessories, in standard and special analyses.

TENNESSEE COAL, IRON & RAILROAD COMPANY

General Offices: Brown-Marx Building, Birmingham, Ala.

Subsidiary of United States Steel Corporation

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY
ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY
OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R. R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif. *Export Distributors*—United States Steel Products Company, 30 Church Street, New York, N. Y.

STEEL, WROUGHT AND CAST IRON PIPE, AND TUBING

Welded Iron, Steel Pipe □

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal
¼ & ⅜	57	34	½	28	10½
½	62	49½	¾	33	16½
¾	65½	55	1—1¼	36	20½
1—3	67½	57	2	38	21

LAP WELD

2	61	50½	2	26	12½
2½ to 6	64½	54	2½—3½	33	18½
8	62	51	4—6	35	22
10	60	49	7—8	34	21½
12	59	48	9—12	31	16½

BUTT WELD

Extra strong, plain ends

⅛	48	33	¼ & ⅜	+7	+41
¼ & ⅜	53½	38½	½	28	12½
½	59	49½	¾	33	17½
¾	63½	54	1—2	39	23

LAP WELD

Extra strong, plain ends

2	59	49½	2	34	18½
2½ to 4	62½	53	2½—4	39	25
5 & 6	62	52½	4½—6	38	24
8	58	47	7 & 8	36	22
10	51½	40½	9—12	26	13½
12	50½	39½			

STEEL LINE PIPE

2 to 3 butt	66½	2½ to 6 lap	63½
2 lap	60	8 lap	61
10 lap	59	12 lap	58

Discounts on steel pipe are net and not subject to any point or preferential. On iron pipe, the discounts shown on the cards are net, and are not subject to any further discounts or preferentials.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		*Charcoal Iron*	
2--2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing □ □

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe □ □

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 43.40 to 44.40
Six to 24-inch, Chicago..... 40.40 to 41.40
Six-inch and over, N. Y... 32.00 to 34.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore*	2.35c
Boston	3.25c
Buffalo	2.95c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia..	2.45c
Pittsburgh	2.60c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.35c
Boston	3.25c
Buffalo	3.15c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia..	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga..	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl...	2.10c
Los Ang., lcl	2.40c
New York....	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young. ...	2.30c-2.60c

SHAPES

Baltimore*	2.35c
Boston	3.35c
Buffalo	3.20c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia..	2.45c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore*	2.35c
Boston	3.35c
Buffalo	3.20c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	3.30c
New York(d)	3.30c
Philadelphia..	2.45c
Phila. floor....	5.10c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore*	2.80c
Boston	3.50c
Buffalo	3.45c
Chattanooga..	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)....	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga..	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York ..	3.75c-4.00c
Phila.*†(e) ..	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	3.90c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga..	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	3.75c
Houston	4.25c
Los. Ang.	4.50c
New York...	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

†BANDS

Baltimore	2.65c
Boston	3.75c
Buffalo	3.30c
Chattanooga..	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter....	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia..	2.75c
Pittsburgh	2.95c
Portland	3.85c
San Fran.	3.15c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

†HOOPS

Baltimore	2.65c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.65c
Det. No. 14 & lighter....	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	**3.75c**

†New extras apply.

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)*	3.48c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.65c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran. (d)(f)	5.55c
Seattle (a)....	4.50c
St. Paul (a)..	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (b)...	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c).....	4.55c
New York	4.55c

(a) Rounds, hex, only.
(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
‡Domestic bars.
*Plus quan. extras.
**Less than 25 sheets.
*†50 or more bundles.

Equipment

Pittsburgh Interest Awards Three Mills; Buying Light

Pittsburgh—American Sheet & Tin Plate Co., Pittsburgh, has awarded a 3-high mill to the Lewis Foundry & Machine Co., Pittsburgh, for installation at Vandergrift, Pa., and at the same time has placed an order for a 4-high mill each with the United Engineering & Foundry Co., Pittsburgh, and E. W. Bliss Co., Brooklyn, N. Y. These latter two mills are to be installed at Gary, Ind., with the Bliss company's order to be produced at its Salem, O., plant. Two furnace interests, one at Warren, O., and the other at Youngstown, O., have each been awarded some furnace work in connection with these new mills.

Worcester, Mass.—New England machine tool builders continue operating on short schedules with sales of machinery light, limited mostly to one or two tools. Several of the textile machinery builders, who benefited slightly in the recent spurt in that industry, note a falling off. Demand for standard tools is almost at a standstill, the light volume with most industrial plants being for special equipment.

New York—Buying and inquiry for machine tool and equipment are stagnant, activity being confined mostly to government buying on which bids range widely. A fair list of tools is up for government departments and early award is expected of a radial drill, shear and boring machine for Brooklyn on which bids are in. Private industrial demand has all but vanished.

Chicago—Activity in machinery and equipment was influenced to a certain extent by the election, although to a larger degree quietness in buying may be attributed to the continued low level of industrial operations. Sales during the past week lacked improvement and inquiry also is slow to expand. Sales generally are heavier than during the preceding several months despite the nonappearance of orders for large lots. Machine tool purchases are confined principally to individual items. The volume of used machinery on the market is increasing as a result of auction sales of bankrupt plants, although many of these tools are moving to other districts.

Cleveland—Sales of machinery and equipment are showing an indefinite trend, with some sellers reporting a slow but steady improvement and others noting a slight falling off from October levels. No large lists are in prospect, purchases being confined to a scattering variety of single machines and replacement lots. A Lorain, O., tube interest is reported to be contemplating the manufacture of a new tube product which will require installation of considerable finishing equipment.

Lack of funds is the chief drawback to purchase of equipment, it appears, and builders and dealers are more than ordinarily cautious about extending credit because of tight money conditions. Outcome of the election appears to have had no major effect upon equipment business, sentiment among most industries being to bend every effort toward booking orders and removing red figures from balance sheets, rather than to show any serious concern over changing political fortunes.

Close on Beer Equipment

St. Louis—Expecting an early return of legalized beer as a result of the election, two New York breweries have placed orders for $60,000 worth of equipment, including pasteurizers, barrel washer and sterilizer, with the Barry-Wehmiller Machinery Co., of this city. Contracts likewise have been closed with a number of other breweries involving about $250,000, conditional upon congressional action on the beer issue. Upward of 50 employes will be recalled immediately by the Barry-Wehmiller company; capacity operations would require 250 additional.

Here and There in Industry

LANGBEIN WORKS, Leipzig, Germany, long recognized as authorities in the field of electro deposition and cleaning of metal surfaces, has concluded an agreement with the Bullard Co., Bridgeport, Conn., under the terms of which they are to introduce the Bullard-Dunn metal descaling process in Great Britain and Continental Europe. Careful tests made in the research laboratories of the Langbein Co. proved that the Bullard-Dunn electro-chemical method removes every trace of oxide and scale from metal surfaces without the slightest damage to the surface of the metal. The economy of this process was also confirmed.

□ □ □

Arrow Conduit & Fittings Corp., Brooklyn, N. Y., has established a Canadian branch, the Arrow Cable & Fittings Co. Ltd., which is operating a plant at 72 Bathurst street, Toronto, Ont.

□ □ □

Farrel-Birmingham Co., Ansonia, Conn., has appointed E. J. von der Heide its sales representative to handle its gears, gear units and gear generators in the Middle West. His headquarters are at 824 Miami Savings building, Dayton, O.

□ □ □

Post Index Co., manufacturer of card-filing devices and a subsidiary of the Art Metal Construction Co., Jamestown, N. Y., has made an arrangement with Business Systems Ltd., 52 Spadina avenue, and the Dominion Tool & Machine Co. Ltd., 460 Richmond street West, Toronto, for fabrication of its visible record equipment for the Canadian market.

□ □ □

Eberhard Co., Cleveland, owner of the foundry and other property of the Racine Malleable & Wrought Iron Co., Lakeside, Racine, Wis., has awarded contracts for dismantling and razing the plant. The contract does not include the 2-story shop and office building bought some time ago by the Racine Screw Co. The business was established 60 years ago by the late John Jensen to manufacture saddlery hardware, wagon and harness accessories. It was later acquired by the Brown & Davis Co. Lessened uses of horse-drawn vehicles and horses limited its business and the plant was closed.

□ □ □

Patterson Foundry & Machine Co., East Liverpool, O., plans to enter the heating field about Jan. 1 with a line of conditioned air heating systems, air conditioners, oil burners, domestic stokers and gas fired equipment for all types and sizes of heating loads. Research and experiment for some time have developed novel and highly perfected equipment. Distribution will be through specialty engineering agencies operating on exclusive territory arrangement, backed by intensive merchandising methods of the company.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

HARTFORD, CONN.—Marlin Firearms Co. has acquired the children's vehicle business of the Rattan Mfg. Co.

HARTFORD, CONN.—E. Ingraham Co., manufacturer of clocks, has started manufacture of a line of kitchen cabinets and furniture.

STRATFORD, CONN.—Baird Machine Co., 1700 Stratford avenue, is taking bids on a 1-story brick and steel factory, 100 x 100 and 35 x 100 feet, to cost $50,000. Fletcher-Thompson Inc., 1336 Fairfield avenue, Bridgeport, Conn., is architect

WATERBURY, CONN.—Waterbury Clock Co. has been released from receivership under reorganization. James R. Sheldon is president and treasurer under the new plan.

WATERBURY, CONN.—Waterbury Fastener Co. has been bought by the Frank J. Quigan Co., Brooklyn, N. Y., which will reincorporate and merge under the name of the latter. Business at the Waterbury plant will be expanded.

CAMBRIDGE, MASS.—Boston Metal Ceiling & Mfg. Co. has renovated and re-equipped a portion of its plant at Massachusetts avenue and Vassar street for use as its executive offices. These offices formerly were at 27 Haymarket square, Boston.

EAST SOMERVILLE, MASS.—Irving Smelting & Refining Corp. has begun operations on North Union street in a building formerly used as a locomotive repair shop by the Boston & Maine railroad, with 20,000 square feet of floor space. It will smelt nonferrous metals, particularly lead. Joseph B. Hoty Jr. is president and Philip Rosenbaum treasurer.

EVERETT, MASS. — New England Tank & Tower Co. is building a plant and office on Tileston street, to be ready about Dec. 1, when production will be transferred from 42 Main street. The new plant is one story, 51 x 144 feet.

LYNN, MASS.—J. Platt Machine Shop has started manufacturing operations at 312 Union street, producing shoe-cutting dies, utilizing 2500 square feet of floor space. Joseph Platt is proprietor.

LYNN, MASS.—Marquis Mfg. Co. Inc. has established a plant at 34 Union street to manufacture a water heater and hot water heating unit for attachment to a range oil burner, with 4000 square feet of manufacturing space. Joseph E. Marquis is president and Edward J. Marquis is treasurer.

EAST PROVIDENCE, R. I.—General Scrap Iron Co. has been incorporated with 100 shares no par value to prepare and deal in scrap metals.

New York

BUFFALO, N. Y.—A. A. Morrison Co. has been incorporated with 200 shares no par value to refine metals, by Saperston, McNaughton & Saperston, Buffalo.

BUFFALO, N. Y.—Vacuum Gas Heating Mfg. Co. has been incorporated with 200 shares no par value to manufacture gas heating appliances, by A. N. Carrell, Buffalo.

BUFFALO—Buffalo Pipe & Foundry Corp. has bought a plant in Tonawanda formerly occupied by the Acheson Graphite Co. and will move its operations there where additional facilities are available. Frank B. Baird is president of the company.

HEMPSTEAD, N. Y.—Sun Oil Burner Co. and Metropolitan Oil Burner Corp. have been incorporated with 200 shares no par value each to manufacture oil burning devices, by Berg & Berk, 949 Broadway, New York.

NEW YORK—Pakseal Corp. has been incorporated with 100 shares no par value to manufacture machinery for sealing packages, by Klausner & Klausner, 225 Broadway.

NEW YORK — Utensils Corp. of America has been incorporated with $5000 capital to manufacture domestic utensils, by Buck & Cohen, 10 East Fortieth street.

NEW YORK—Vaporedaire Corp. has been incorporated with $25,000 preferred stock and 1250 shares no par value to manufacture air conditioning equipment, by L. S. Gatter, 36 West Forty-fourth street, New York.

NEW YORK—American Smelting & Refining Co. has acquired the business of the Federated Metals Corp., New York, specializing in secondary metals, with plants in various parts of the country. The merger is subject to approval of directors and stockholders of the latter company

PITCAIRN, N. Y.—Harrisville Electric Light & Power Co., Harrisville, will build a plant here and transmission lines in Diana, N. Y., to cost $18,000.

ROCHESTER, N. Y.—Vitamental In-

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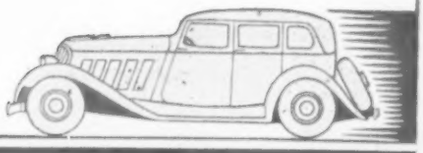

Accuracy-Economy

strument Co. has been incorporated with $10,000 capital to manufacture metal products, by Hubbell, Taylor, Goodwin, Nixon & Hargrave, Rochester, N. Y.

New Jersey

HARRISON, N. J.—H. K. Ferguson Co., Cleveland, is taking bids on the general contract for a 3-story brick and steel office building for the Worthington Pump & Machinery Corp., Harrison.

NEWARK, N. J.—Keystone Sheet Metal Works has been incorporated with 10 shares no par value to operate a sheet metal shop, by Coult, Satz & Tomlinson, 60 Park place, Newark, N. J.

NEWARK, N. J.—Igoe Bros., 234 Pointer street, has let a contract to F. D. Trainer & Son Inc., 12 Smith street, Irvington, N. J., for a 1-story addition to its wire plant at 272 Belmont avenue.

Pennsylvania

PHILADELPHIA — Plans will be ready Nov. 5 for bids until Dec. 5 for hospital and accessory buildings for the United States Naval hospital at Philadelphia, including electric elevators and dumbwaiters and mechanical systems. Total cost of project is estimated at $1,600,000.

PITTSBURGH—Midland Barge Co., Midland, Pa., is low bidder at $11,530 for three steel launches for United States engineers at Kansas City, Mo.

PITTSBURGH—American Barge Line Co., Pittsburgh, is planning construction of a warehouse at Glassport, Pa., as its river-rail terminal. It operates a line of Ohio river steamers between Pittsburgh and New Orleans.

PITTSBURGH—The General Contracting Corp., Pittsburgh, has taken a contract for construction of a tripping bar weir for lock No. 29 in the Ohio river at Ashland, Ky.

PITTSBURGH — Dravo Contracting Co., Pittsburgh, has been awarded contract for construction of lock B in the Huntington, W. Va., district, as well as a roller gate dam, alteration to lock A and power house machinery and lock illumination system at London lock on the Ohio river by United States engineers at Huntington at a bid of $1,571,925.

SMITHS FERRY, PA. — Pittsburgh Coal Co., Oliver building, Pittsburgh, plans installation of coal loading and conveying and other mechanical equipment at its new coal dock here, to cost $30,000.

WILKES-BARRE, PA.—Glen Alden Coal Co. will rebuild its Stanton coal breaker plant near here at a cost of $500,000.

Ohio

AMHERST, O.—Rejection at recent election of offer of utility company to buy electric distribution system opens way for resumption of plans for construction of a municipal electric light and power generating plant.

CINCINNATI, O.—Standard Roller Co. has been incorporated with 150 shares preferred and 100 shares no par value, by Charles L. Swain, Provident Bank building.

CLEVELAND—Cleveland Rug Cleaning Machinery Co. has been incorporated with 100 shares no par value to manufacture machinery, by H. M. True & Co., 2536 Euclid avenue, Cleveland.

MARTINS FERRY, O.—Pursglove estate, Martins Ferry, plans construction of a power plant at Willow Grove coal mining properties as part of an expansion program involving about $75,000, including equipment.

OBERLIN, O.—Council has plans under way for a municipal electric light and power plant to cost $250,000. R. Husselman, Hippodrome building, Cleveland, is engineer.

TOLEDO, O.—Fort Pitt Tool & Supply Co. has been incorporated with 250 shares no par value, by Harry Levison, Spitzer building, Toledo, O.

Michigan

DETROIT—Hudson Mfg. Co., 2832 East Grand boulevard, has been incorporated with $5000 capital to manufacture tools and machinery, by William H. Hudson, 16845 Huntington avenue.

DETROIT—Welch Tool & Mfg. Co., 4723 Sixteenth street, has been incorporated with $3000 capital to manufacture metal-cutting tools, by Rodney R. Welch, 14281 Roselawn avenue.

DETROIT—McCord Radiator & Mfg. Co., is reported to be entering the air conditioning field with a new type of combination air conditioning, cooling, heating and dehumidifying unit.

DETROIT—L. G. Lenhart, commissioner of public works, will advertise for bids for construction of a garbage incineration system. Bids will be opened about Jan. 1. Estimated cost is about $2,000,000.

DETROIT—City Tool Engineering Inc., 1207 Wayburn street, has been incorporated with $25,000 capital to manufacture tools, dies, drills, jigs, by Albert N. Lundberg, 3636 Nottingham road.

FRANKFORT, MICH. — Great Lakes Dredge & Dock Co., Chicago, has taken a contract from the Wabash railroad to build 200 lineal feet of steel sheet piling on the railroad's dock wall here.

JACKSON, MICH.—J. D. Swartout, Saginaw, Mich., has completed plans for an addition and alterations to the power plant of the Alloy Steel Spring & Axle Co., Jackson, Mich.

LUDINGTON, MICH.—Contract has been made by city council with an engineering firm for a survey of city to determine feasibility of construction of a municipal electric light and power plant.

MUSKEGON HEIGHTS, MICH.—Taylor Sales Fixtures Co., manufacturer of store fixtures, has bought a plant at Niles, Mich., and will move its business there, obtaining larger facilities.

STURGIS, MICH.—Sturgis Die & Tool Co. has been formed by W. E. Kline, 411 Center Ave., and will start business in the plant formerly occupied by a manufacturer of gocarts. Additional machinery will be installed as business needs demand.

Indiana

SHELBYVILLE, IND. — Chambers Corp. has been incorporated with 2500 shares no par value to manufacture stoves, by John E. Chambers and associates, Shelbyville, Ind.

Illinois

CHICAGO—Reuter Bros. Iron Works Inc., 5820 South Wood street, has been incorporated with $60,000 capital to conduct an iron and bronze foundry.

CHICAGO—Cornell Forge Co. has decreased capitalization from $140,000 to $100,000. Williams, Brandury, McCaleb & Hinkle, 2300 Board of Trade building, are correspondents for the company.

CHICAGO—United States engineer for the first Chicago district, 333 North Michigan avenue, is taking bids on three steel oil barges for delivery afloat at Lockport or Starved Rock, Ill.

CHICAGO—Ward Machinery Co. Inc., 564 West Washington street, has been incorporated with $2000 common stock to manufacture machinery and machine products, by Louis S. Cohn, First National Bank building, Chicago.

CHICAGO—Universal Sixsite Fuse Plug Corp., 8440 South Chicago avenue, has been incorporated with 1000 shares no par value to manufacture electrical and mechanical applinces, by D'Ancona, Pflaum & Kohnsaat, 23 North LaSalle street.

NORTH CHICAGO, ILL.—B. Bowater has taken over the interest of Arthur Nelson in the North Chicago Pattern & Machine Co., 112-114 Morrow avenue.

Southern States

WILMINGTON, DEL. — Jefferson Union Co. has been incorporated with $100,000 preferred stock and 1000 shares no par value to manufacture pipe fittings, pipe and tubing, by Corporation Trust Co., Wilmington, Del.

WASHINGTON—Bureau of supplies and accounts, navy department, will open bids as follows: Nov. 15, schedule 9047, one electric furnace for Philadelphia; schedule 9070, one motor-driven pipe bending machine for Brooklyn, N. Y.; schedule 9054, one electric dynamometer for Philadelphia delivery; Nov. 22, schedule 9039, three motor-driven toolmaker's precision lathes for

Construction, Enterprise

San Pedro, Calif.; schedule 9040, one motor-driven universal turret lathe for San Pedro, Calif.; schedule 9046, three motor-driven engine lathes for Mare Island, Calif.; schedule 9051, two motor-driven shapers.

Nov. 22, schedule 9058, one motor-driven drill grinder; Nov. 29, schedule 9063, one motor-driven geared head engine lathe for Mountain View, Calif.; schedule 9064, one motor-driven bench precision lathe.

TALLAHASSEE, FLA.—R. O. Collins Iron Works plans construction of a 1-story foundry, general contract to Prichard Bros., Tallahasse, to cost over $28,000.

ALEXANDRIA, LA.—J. D. Adams Co., Indianapolis, Ind., manufacturer of road and levee-building equipment, has leased a plant at Fifteenth and Kelly streets and will establish a plant to serve the state of Louisiana, in charge of Barney Overstreet.

LA FRANCE, S. C.—Pendleton Mfg. Co., has let a contract to C. M. Guest & Son, Anderson, S. C., for a 300-horsepower steam power plant, and boilers.

NASHVILLE, TENN. — Auto Bearings & Parts Co., Broadway and Sixth avenue, has taken additional adjacent manufacturing space and added a department for building automotive springs for all types of cars and trucks. W. S. Hunter is manager.

CHARLESTON, W. VA.—Valley Byproducts Coal Co. plans to build a coal loading plant on the Big Kanawha river near here to cost $28,000.

EAST RADFORD, VA.—State of Virginia has authorized the Appalachian Power Co., Richmond, Va., to build a hydroelectric plant on New river, near here, to cost $12,000,000.

Missouri

ST. LOUIS—Hussman-Ligonier Co., manufacturer of commercial refrigerators and store equipment, has leased a 5-story building from the International Shoe Co. and will occupy it, this addition increasing its floor space to 170,000 square feet.

Oklahoma

DOUTHAT, OKLA.—V-8 Mining Co. has been incorporated with $5000 capital to operate lead and zinc mining properties by Oliver Kenny and Burl Smith.

OKLAHOMA CITY, OKLA.—Boiler Equipment Supply Co. has been incorporated with $3000 capital by Robert W. Langston, 801 S.W. Thirty-fifth street.

OKMULGEE, OKLA.—John Penrod Co. has been incorporated with $25,000 capital to manufacture oil field equipment, by John Penrod, Commerce building.

TULSA, OKLA.—Universal Traffic Signal Co. has been incorporated with $25,000 capital to manufacture traffic

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YUKON, OKLA. — Okahoma Valve Corp. has been incorporated to manufacture valves by Ralph W. Kerr.

Texas

FORT WORTH, TEX.—Merrick Corp. Burkburnett building, has been formed to manufacture oil field products of bakelite materials. W. R. Law is president. Construction of a plant is being planned.

Wisconsin

CAMPBELLSPORT, WIS. — Pittsburgh-Des Moines Steel Co. is low bidder on a 60,000-gallon steel tank on a 100-foot steel trestle for the new municipal waterworks project.

COLUMBUS, WIS.—Roberts Filter Mfg. Co. is low bidder on filtering equipment for the new municipal plant here at $5690.

KENOSHA, WIS. — MacWhyte Co., manufacturer of wire rope and cable, has been awarded a substantial government contract for four sizes of wire rope for an army engineering project at Galveston, Tex.

MADISON, WIS.—Riehle Bros. Testing Machine Co., Philadelphia, is low bidder on one 300,000-pound capacity universal testing machine for the state highway department, at $6300 for a hydraulic and $6615 for a vertical screw type.

MILWAUKEE—Heil Co., manufacturer of steel tanks, hydraulic hoists, motor bodies, oil burners and air power pumps, 3000 West Montana street, has let contracts for an addition 30 x 125 feet, to be used as a testing room.

MILWAUKEE—Extensive alterations are being made in the former Hamilton Metalplane Co. factory at 944 West Bruce street, owned by the Pabst Corp., for occupancy by the Solar Corp., Beaver Dam, Wis., manufacturer of storage batteries and paints, about Jan. 1.

OSHKOSH, WIS. — Worthington Pump & Machinery Corp., through its Chicago office, is low bidder at $6200 for pumps and motors for the two new sewage pumping stations at Oshkosh.

WISCONSIN RAPIDS, WIS.—Liquefied Natural Gas Co., Minneapolis, will build a new plant here if the franchise originally granted the American Gas Construction Co. is extended.

WISCONSIN RAPIDS, WIS.—Plans are being drawn for a new warehouse and scrap-handling plant for the Frank Garber Iron & Metal Co.

Iowa

OELWEIN, IOWA—Chicago Great Western railroad has given a contract to the National Boiler Washing Co., Chicago, for a boiler washing system serving 40 stalls in its enginehouse here.

Montana

HAMILTON, MONT.—Bids will be opened at Washington, D. C., Nov. 22 for a site and construction of a public health service laboratory for which $150,000 has been appropriated.

Arizona

PHOENIX, ARIZ. — Thompson Valve Co., 1801 West Madison street, has been incorporated with $1,000,000 capital to manufacture valves, by J. C. Thompson and associates.

Pacific Coast

BEVERLY HILLS, CALIF.—Payne Furnace & Supply Co., 336 North Foothill road, has enlarged its plant and is manufacturing household heaters for general distribution. L. E. Payne is general manager.

LOS ANGELES—Keystone Machine Co., 1448 San Pedro street, is expanding its lines and adding to its equipment.

LOS ANGELES—Solar Lighting Fixture Co., 44 North Western avenue, has taken a contract for $107,500 worth of fixtures for the general hospital at Los Angeles.

LOS ANGELES—Willard Storage Battery Co., 5700 East Ninth street, is building a $100,000 addition for use as lead oxide and sulphuric acid departments. C. H. Starr is general manager.

LOS ANGELES—Hamilton Mfg. Co., 4440 East Forty-ninth street, a branch of the company of the same name at Two Rivers, Wis., is taking over the hospital equipment line of the Albatross Steel Furniture Co., Los Angeles, and is enlarging its plant. R. G. E. Cornish is in charge of the new line.

SAN FRANCISCO—Gladding McBean Co., 660 Market street, San Francisco, is preparing plans for a tunnel kiln for manufacture of clay products at Glendale, Calif.

SEATTLE, WASH.—Port of Seattle has authorized expenditure of $80,000 for construction of passenger facilities and warehouse extensions at the Bell street dock. The structure is to be of timber, with sheet metal covering.

SPOKANE, WASH.—Madison Gold Co. has been incorporated with $100,000 capital, by McCarthy & Edge, attorneys.

NORTHPORT, WASH. — Deertrail Monitor Mines, J. R. Brown president, plans a molybdenum ore handling mill, to cost $26,000.

Dominion of Canada

EDMONTON, ALTA.—Work has been started on the plant for an oil refinery for the new oil refining company to be headed by Lars Olson, Calgary, head of General Petroleums Ltd., Calgary. Ultimate investment to be $300,000 to $400,000.

CRANBROOK, B. C.—North Star Oil Co. will award contracts soon for construction of a fireproof warehouse and three gas tanks on concrete foundations. William J. McFarland is agent here.

NELSON, B. C.—West Kootenay Power & Light Co. is preparing plans for developing power resources on Goat river, near Creston, according to L. A. Campbell, vice president and general manager.

HALIFAX, N. S.—Provincial Oils Ltd. will build an oil storage plant on North Barrington street consisting of three tanks with 522,000 gallons capacity. Other construction work and a pipe line are included in plans.

HAMILTON, ONT. — Combustion Engineering Co. Ltd., Toronto, Ont., has been given a contract for stokers for the Mount Hamilton hospital. H. G. Wells is chairman of the hospital board.

LONDON, ONT.—A municipal incinerator is planned for construction in 1933 on Watson street. William Vietch is city engineer.

SUDBURY, ONT. — Falconbridge Nickel Mines Ltd., 100 West Adelaide street, Toronto, plans a 200-ton concentration mill, sintering plant and smelter additions, to cost over $28,000.

TORONTO, ONT.—Work is to be resumed on construction of the Abitibi Canyon power development under direction of the Ontario hydroelectric power commission, F. A. Saby chief engineer. Two power units are to be installed.

New Trade Publications

WATER SOFTENERS—Permutit Co., 440 Fourth avenue, New York, has issued a booklet on its water softeners, containing illustrations, diagrams, tabulating data, conversion tables factors and reactions.

BAR BENDERS—Kardong Bros. Inc., Minneapolis, has issued a catalog of its line of bar benders, covering all sizes from small hand machines to power benders with capacities of 20 tons per day. Illustrations and descriptions are complete.

TORCHES—Information on equipment for soldering, brazing and heating is included in a bulletin recently prepared by the Linde Air Products Co., New York, dealing with torches. The equipment operates on dissolved acetylene gas.

MINE HOISTS—A bulletin, No. 1593, by the General Electric Co., Schenectady, N. Y., is devoted to the subject of mine hoists, especially electric equipment for that use. Descriptions and illustrations show typical equipment for this use and numerous views are given of installations in coal and metal mine plants.